CARNEGIE
BEAM SECTIONS

PROFILES AND PROPERTIES

CARNEGIE STEEL COMPANY

PITTSBURGH, PA.

FIRST EDITION

A. I. A. FILE NO. 13

ID 41-B2067

CARNEGIE BEAM SECTIONS

STATUS OF ROLLS

FOR THE SECTIONS SHOWN IN FIRST EDITION OF PAMPHLET ENTITLED "CARNEGIE BEAM SECTIONS, PROFILES AND PROPERTIES," DATED JANUARY 1, 1927.

FIRST GROUP—10 SECTIONS.

ROLLS ARE NOW READY FOR THE FOLLOWING 10 SECTIONS,

	Section No.	Depth	Flange Width	
1	CB-103	10″	9″	Constant Depth.
2	CB-104	10″	10″	Constant Depth.
3	CB-105	10″	12″	Constant Depth.
4	CB-126	12″	14″	Constant Depth.
5	CB-127	12″	14″	Constant Depth.
6	CB-122	12″	6½″	
7	CB-142	14″	6¾″	
8	CB-146	14″	15″	
9	CB-181	18″	7½″	
10	CB-242	24″	9¾″	

SECOND GROUP—13 SECTIONS.

A group of 13 sections has been selected for which roll equipment will be prepared next, as follows:

	SECTION No.	DEPTH	FLANGE WIDTH	
11	CB-145	14″	12″	
12	CB-241	24″	8½″	
13	CB-121	12″	6″	
14	CB-141	14″	6″	
15	CB-161	16″	6″	
16	CB-162	16″	7″	
17	CB-124	12″	10″	Constant Depth.
18	CB-125	12″	12″	Constant Depth.
19	CB-211	21″	8″	
20	CB-271	27″	9¾″	
21	CB-301	30″	10½″	
22	CB-101	10″	6″	
23	CB-102	10″	8″	Constant Depth.

It is proposed to prepare rolls for the above mentioned group of 13 sections substantially in the order named. We hope to be prepared to roll the first of these sections about the middle of March, completing the group about the middle of May.

THIRD GROUP—REMAINING SECTIONS.

With the exception of 8″ sections CB-82, CB-83, B-39 and the 9″ sections, CB-92, CB-93 and B-40, it is hoped that roll equipment for all of the remaining sections will be ready by the middle of June.

While the designs for the 8″ and 9″ sections are included in the pamphlet, and are a part of the range of sections, it is proposed to defer preparing for these sections until a later date. In the meantime requirements for an 8″ section can be supplied by the use of our present 8″ H-beam known as section H-4.

Pittsburgh, Pa., January 29, 1927.

CARNEGIE
BEAM SECTIONS

PROFILES AND PROPERTIES

PERTAINING TO A

NEW SERIES

OF

STRUCTURAL STEEL BEAMS

AND

COLUMN SECTIONS

MANUFACTURED BY

CARNEGIE STEEL COMPANY

PITTSBURGH, PA.

G11610XXM127

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CARNEGIE STEEL COMPANY
Pittsburgh, Pa.

First Edition, January 1, 1927.

Printed in U. S. A.

SINCE the adoption of the present American Standard Beam Sections, in 1896, developments of such magnitude have taken place in the structural steel industry, both at home and abroad, as to demand an improved series of rolled sections suitable for both beam and column purposes.

The series now placed on the market under the name **CARNEGIE BEAM SECTIONS,** provides for this demand by means of a series of shapes combining sound engineering principles with practical improvements. All its sections are produced on a structural mill of the most advanced type.

The series provides a range of rolled steel beam and column sections progressing by regular steps, with contours that will permit sections to be used interchangeably for whichever purpose they are adapted, and in sizes and weights sufficiently varied to meet all ordinary requirements. Their efficiency is high and their component parts are proportioned to permit of ready fabrication.

ADVANTAGES

The advantages characterizing the new series of Carnegie Beam Sections will be explained under the following captions:—

CONTOUR DESIGN
WEB AND FLANGE RATIO
RANGE OF SIZES
PROGRESSIVE BEAM DESIGN
IMPROVED COLUMN DESIGN

CONTOUR DESIGN

A new form of contour has been adopted whose principal characteristic is the elimination of internal flange slope, the flanges being of uniform thickness throughout their width. This feature increases the strength of the section, permits simpler connections and facilitates fabrication.

Carnegie Beam Sections permit the use of maximum unit stresses in shear and compression for resistance to web buckling and flange crippling, respectively, in conformity with usual building specifications. All fillets, which are parabolic in form, combine maximum spread with minimum area.

WEB AND FLANGE RATIO

In the production of most of the Carnegie Beam Sections a method is used whereby an adequate variety of weights in each group, having substantially equal efficiency per pound, is attained by spreading both horizontal and vertical rolls a proportionate amount. This practice causes the depth of sections to vary somewhat from the nominal, but this variation is kept within limits that will not affect the standardization of details.

A second characteristic, found in the heavier groups of column sections, is an increase in width as compared with depth, combining maximum economy in design of framing and in floor space.

RANGE OF SIZES

Carnegie Beam Sections provide a range of beam and column shapes, from 8 to 30 inches deep and from 5 to 16 inches wide, in weights up to 305 pounds per linear foot, with section moduli about the major axis up to 738 $in.^3$, and with radii of gyration about the minor axis up to 4.14 in.

In general, no sharp line has been drawn between beams, girder beams and columns. The consequent economy in number of sections will insure better deliveries, reduce the number of sizes carried in stock, and allow a greater standardization in shop methods and tools.

Profiles, dimensions and weights are given on pages 8 to 30. Other data pertaining to dimensions and properties are tabulated on pages 32 to 41.

The range of depths in which occurs the greatest normal demand is covered by the adoption of sections 14 and 16 inches deep, affording the designer a better and more economical selection of sections to be used as beams.

PROGRESSIVE BEAM DESIGN

The introduction of the 14 and 16 inch Carnegie Beam Sections gives a progressive series in which each depth is approximately 15 per cent greater than the preceding depth, as shown graphically on range charts on pages 32 and 33. In addition, successive weights in each group are so arranged that their strengths progress by steps having close and approximately regular ratios of increase.

Intermediate groups of heavier sections, of the same depth but with wider flanges and greater strength, are provided for use as beams in structures where it is important to limit the depth of section. These sections are also suitable for columns.

The selectivity of the series for use as beams is indicated graphically in the tables and charts on pages 34 to 37.

Minimum weights of 10-, 12-, 14- and 16-inch sections are offered with a uniform width of 6 inches, which permits a corresponding uniformity in fireproofing and finish.

Very complete groups of sections 24, 27 and 30 inches deep, are provided with flanges 14 inches wide. These will be found convenient for use in structures that cannot be braced laterally and may also be used to advantage where limited clearance is an important factor in design.

Efficient sections, notably 12 inches and deeper, are provided with webs $\frac{3}{8}$ inch in thickness, in order to comply with specifications requiring a minimum thickness of metal.

IMPROVED COLUMN DESIGN

Carnegie Beam Sections include two groups: a **Variable-Depth Type** and a **Constant-Depth Type.** The sections of the latter group are intended primarily for columns, though sections of either type may also be used as beams or girders. In the **Variable-Depth Type** both depth and width increase proportionately as weights increase from the minimum. In the **Constant-Depth Type** the depth does not change, the increase in weights being obtained by thickening the web and widening the flanges. With the heavier groups of both types, high properties about the minor axis are secured by the proportions adopted.

The **Variable-Depth Type** contains notably sections of the following depth, flange width and weights:—

CB 83	**8″ x 8″**	**31 to 90 lbs.**
CB 145	**14″ x 12″**	**85 to 105 lbs.**
CB 146	**14″ x 15″**	**115 to 305 lbs.**

These sections will be used principally as columns.

In addition, sections 8, 9, 10, 12 and 14 inches deep, are provided having intermediate flange widths which may be used either as beams in shallow floors or as light columns.

The **Constant-Depth Type** is offered in two depths only, 10 and 12 inches, with the following flange widths and weights:—

CB 102	**10″ x 8″**	**31 to 42 lbs.**	**CB 124**	**12″ x 10″**	**75 to 100 lbs.**
CB 103	**10″ x 9″**	**49 to 63 lbs.**	**CB 125**	**12″ x 12″**	**110 to 140 lbs.**
CB 104	**10″ x 10″**	**70 to 92 lbs.**	**CB 126**	**12″ x 14″**	**150 to 180 lbs.**
CB 105	**10″ x 12″**	**100 to 140 lbs.**	**CB 127**	**12″ x 14″**	**190 to 230 lbs.**

The 10-inch series will take care of an ordinary 12-story building, while the 12-inch series, in conjunction with the 10-inch series, will take care of an ordinary 18-story building. If desired, the scope of any group can be extended by reinforcement with flange plates.

The Constant-Depth Type presents an innovation in rolled steel column sections in that the over-all depth for all sizes of a nominal depth does not vary. The advantages of this feature are reflected in the symmetry of beam and spandrel framework connecting to the columns at a number of successive floors in a steel building, thus effecting a substantial saving in the drafting room, fabricating shop and in the field. The avoidance of fillers under splices on the columns themselves is also advantageous. To the architect and the general contractor constant depth is valuable in that it permits a greater uniformity in fireproofing and finish.

MISCELLANEOUS DATA

All weights per linear foot of Carnegie Beam Sections are expressed in whole pounds. Fillets are included in weights, areas and other properties.

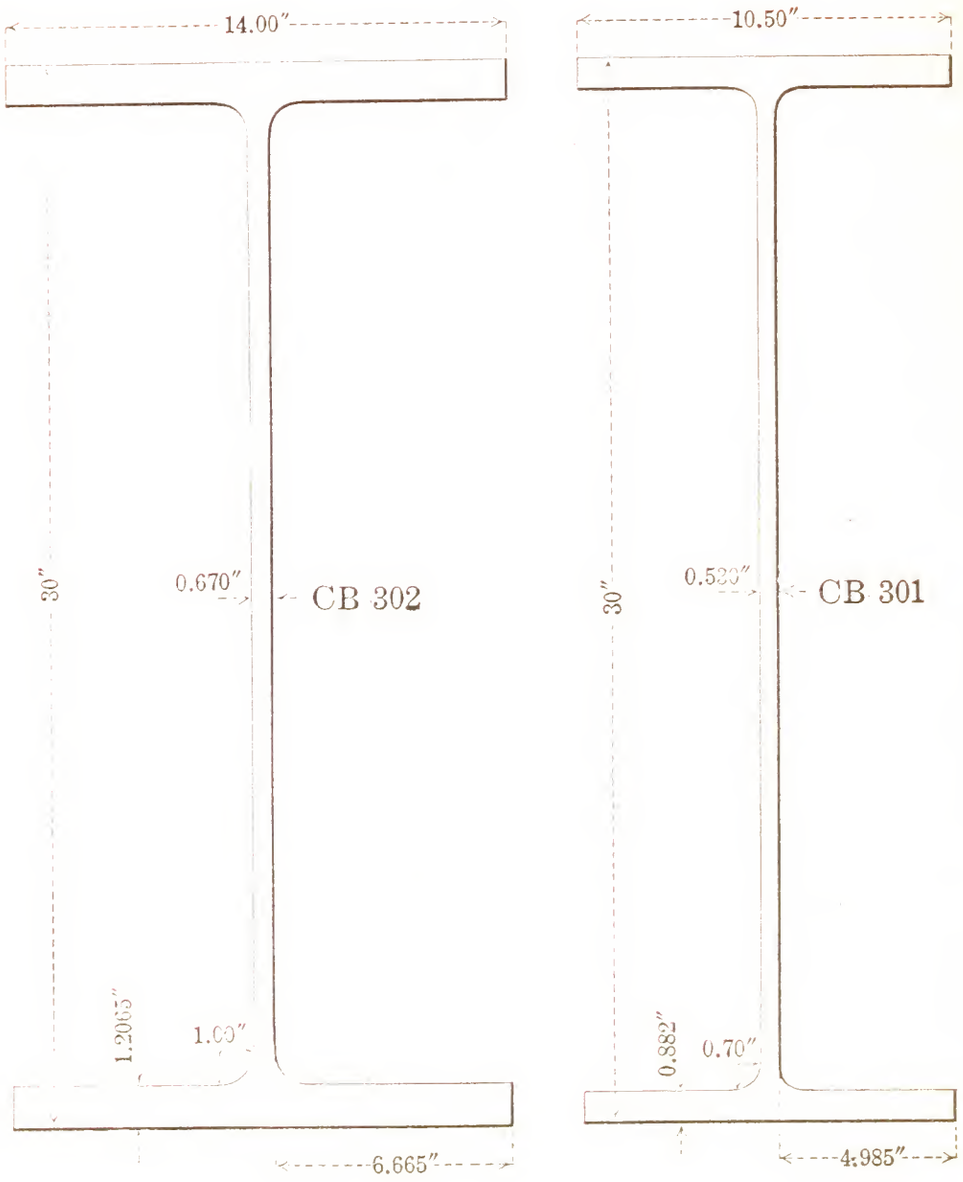
The dimensions to which the rolls for Carnegie Beam Sections are turned extend to three decimal places of an inch, as shown on diagrams on pages 8 to 29, but it will be more convenient for the designer to use the fractions to which they have been rounded in the tables of dimensions of sections on pages 33 to 41.

Carnegie Beam Sections will be furnished to the specifications of the Association of American Steel Manufacturers, American Society of Testing Materials or to such other acceptable standard specifications as may be required.

CARNEGIE
BEAM SECTIONS

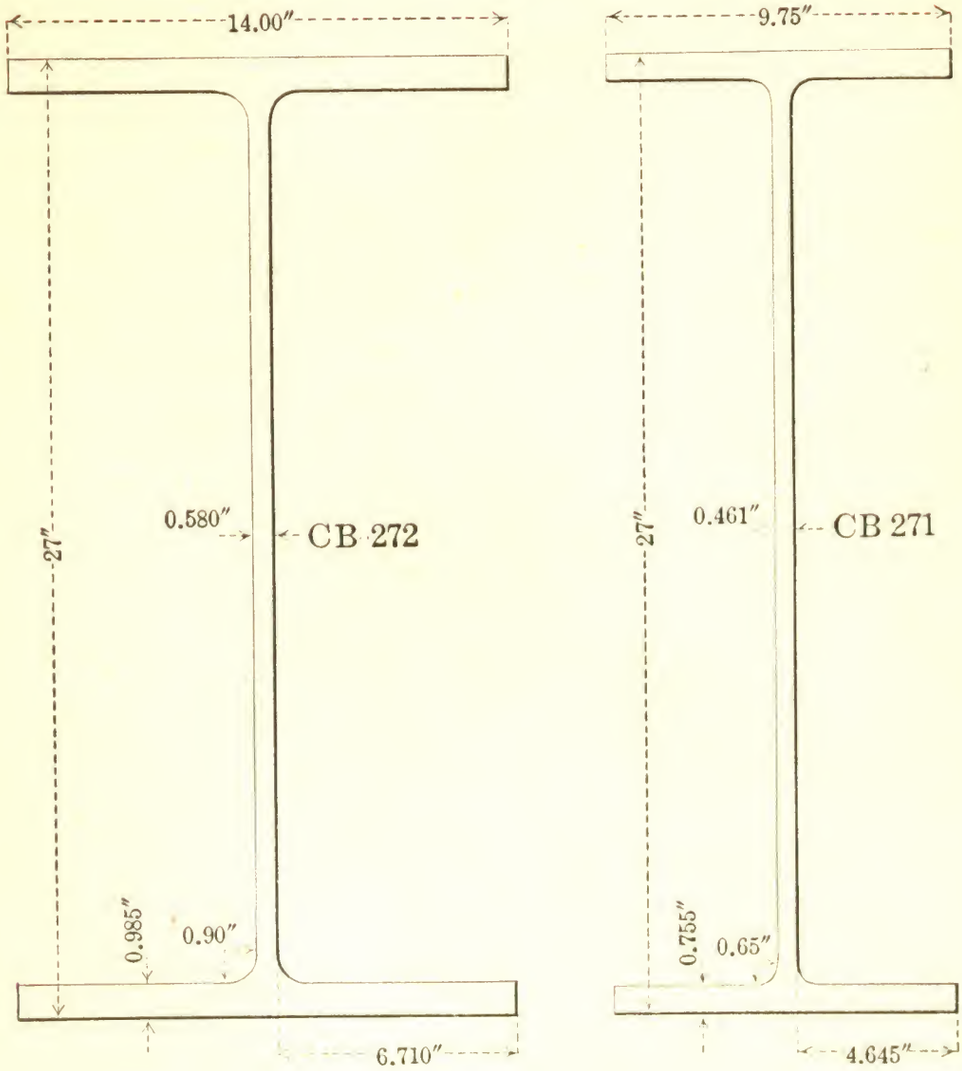
PROFILES AND DIMENSIONS

CARNEGIE BEAM SECTIONS



Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
CB 302	30.781	30 25/32	240	14.218	14 7/32	1.597	1 19/32	0.888	57/64
	30.522	30 33/64	220	14.146	14 9/64	1.4675	1 15/32	0.816	13/16
	30.263	30 17/64	200	14.073	14 5/64	1.338	1 11/32	0.743	3/4
	30.000	30	180	14.000	14	1.2065	1 13/64	0.670	43/64
CB 301	30.298	30 19/64	135	10.591	10 19/32	1.031	1 1/32	0.621	5/8
	30.148	30 9/64	125	10.546	10 35/64	0.956	61/64	0.576	37/64
	30.000	30	115	10.500	10 1/2	0.882	7/8	0.530	17/32

CARNEGIE BEAM SECTIONS—Continued

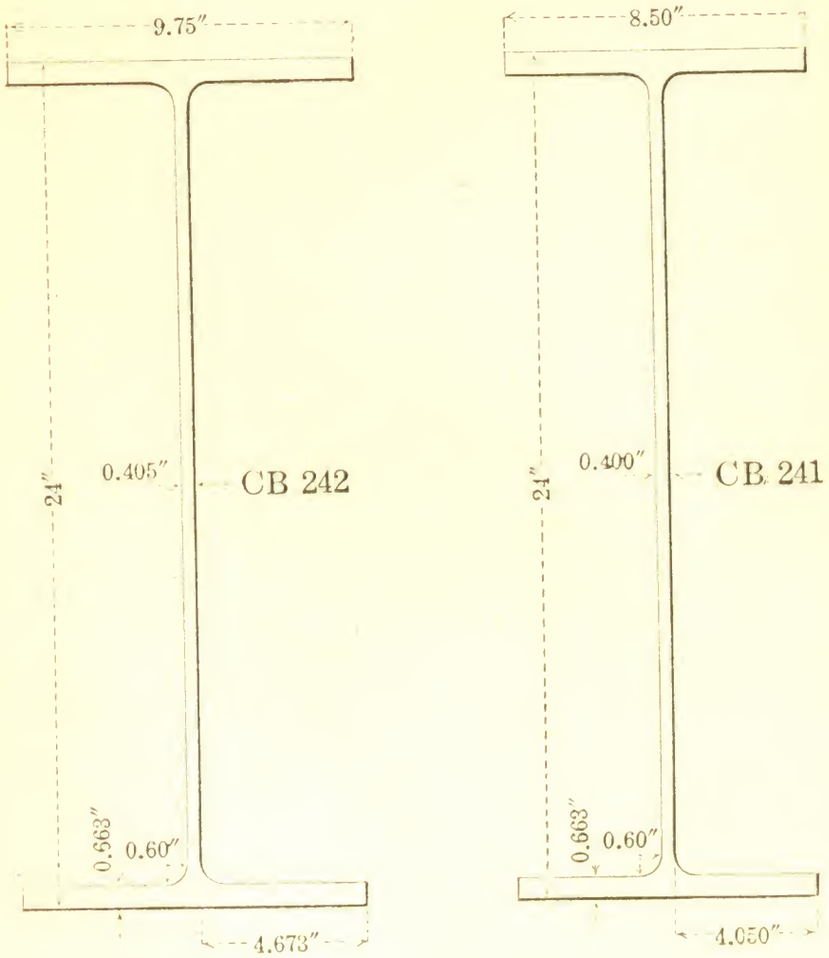


Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
CB 272	27.598	27 19/32	190	14.176	14 11/64	1.284	1 9/32	0.756	3/4
	27.400	27 13/32	175	14.118	14 1/8	1.185	1 3/16	0.698	45/64
	27.200	27 13/64	160	14.059	14 1/16	1.085	1 5/64	0.639	41/64
	27.000	27	145	14.000	14	0.985	63/64	0.580	37/64
CB 271	27.340	27 11/32	112	9.855	9 55/64	0.925	59/64	0.566	9/16
	27.166	27 11/64	101	9.799	9 51/64	0.838	27/32	0.510	33/64
	27.000	27	91	9.750	9 3/4	0.755	3/4	0.461	15/32

CARNEGIE BEAM SECTIONS—Continued

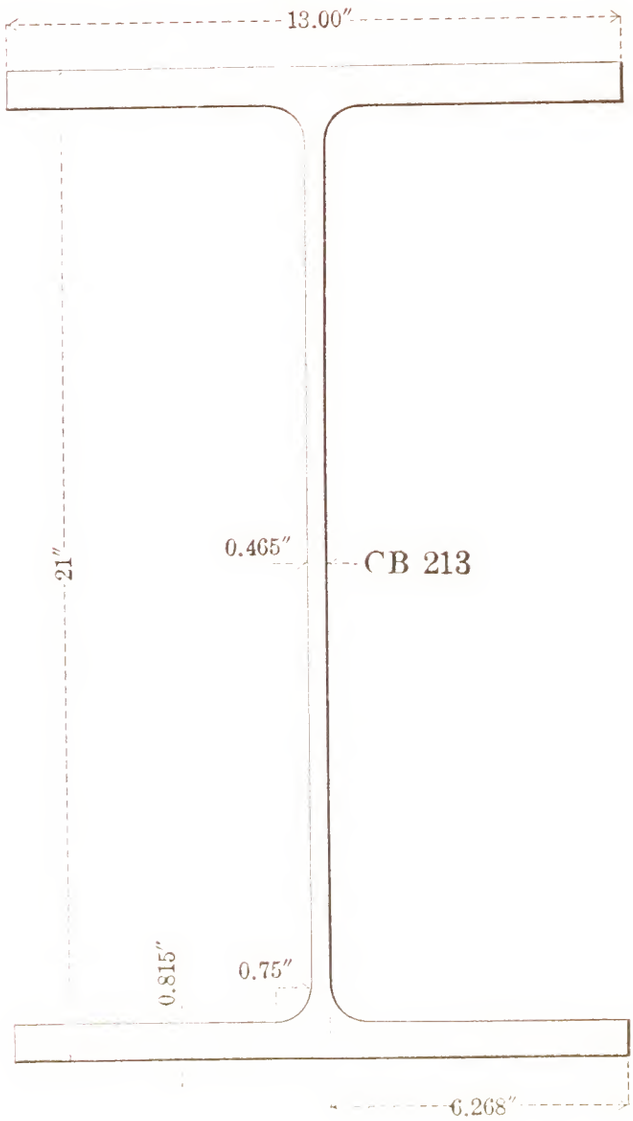
Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
CB 244	24.664	24 21/32	160	14.123	14 1/8	1.119	1 1/8	0.670	43/64
	24.526	24 17/32	150	14.082	14 5/64	1.050	1 3/64	0.629	5/8
	24.388	24 25/64	140	14.041	14 3/64	0.981	63/64	0.588	19/32
	24.250	24 1/4	130	14.000	14	0.912	29/32	0.547	35/64
CB 243	24.310	24 5/16	120	12.089	12 3/32	0.942	15/16	0.539	17/32
	24.156	24 5/32	110	12.044	12 3/64	0.865	55/64	0.494	1/2
	24.000	24	100	12.000	12	0.787	25/32	0.450	29/64

CARNEGIE BEAM SECTIONS—Continued



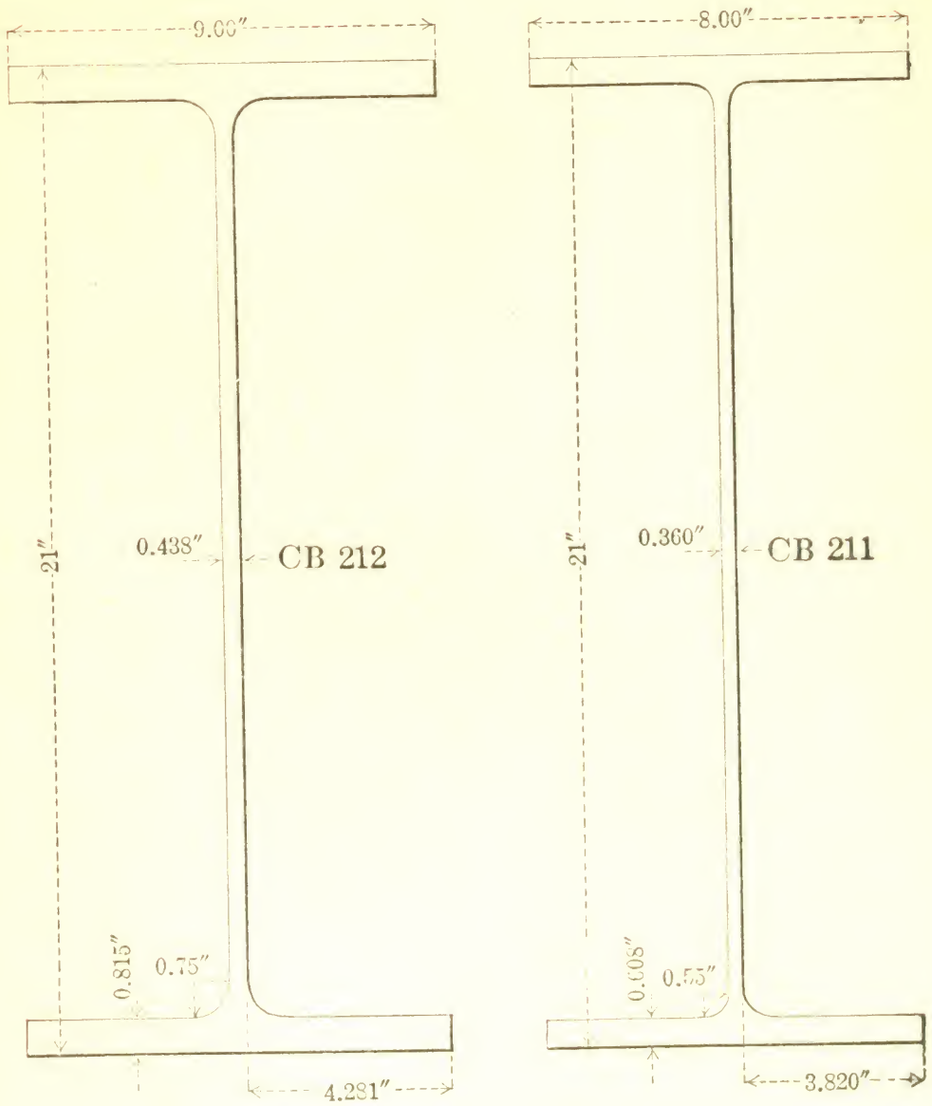
Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
CB 242	24.308	24 5/16	94	9.844	9 27/32	0.817	13/16	0.499	1/2
	24.154	24 5/32	85	9.797	9 51/64	0.740	47/64	0.452	29/64
	24.000	24	76	9.750	9 3/4	0.663	21/32	0.405	13/32
CB 241	24.000	24	70	8.500	8 1/2	0.663	21/32	0.400	13/32

CARNEGIE BEAM SECTIONS—Continued



Section Index	Depth of Section, Inches		Weight per Foot Pounds	Flange Width, Inches		Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
CB 213	21.248	21¼	120	13.070	13 1/16	0.939	15/16	0.535	17/32
	21.126	21⅛	112	13.034	13 1/32	0.878	⅞	0.499	½
	21.000	21	104	13.000	13	0.815	13/16	0.465	15/32

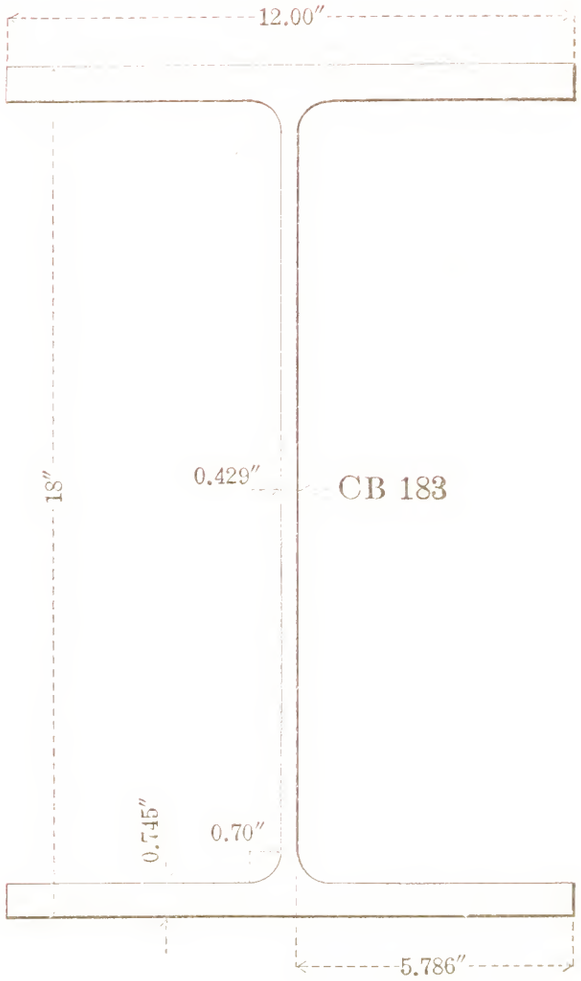
CARNEGIE BEAM SECTIONS—Continued



Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
CB 212	21.240	21 15/64	92	9.064	9 1/16	0.935	15/16	0.502	1/2
	21.120	21 1/8	86	9.032	9 1/32	0.875	7/8	0.470	15/32
	21.000	21	80	9.000	9	0.815	13/16	0.438	7/16
CB 211	21.248	21 1/4	70	8.073	8 5/64	0.732	47/64	0.433	7/16
	21.126	21 1/8	64	8.036	8 1/32	0.671	43/64	0.396	25/64
	21.000	21	58	8.000	8	0.608	39/64	0.360	23/64
	*21.034	21 1/32	60	8.015	8 1/64	0.625	5/8	0.375	3/8

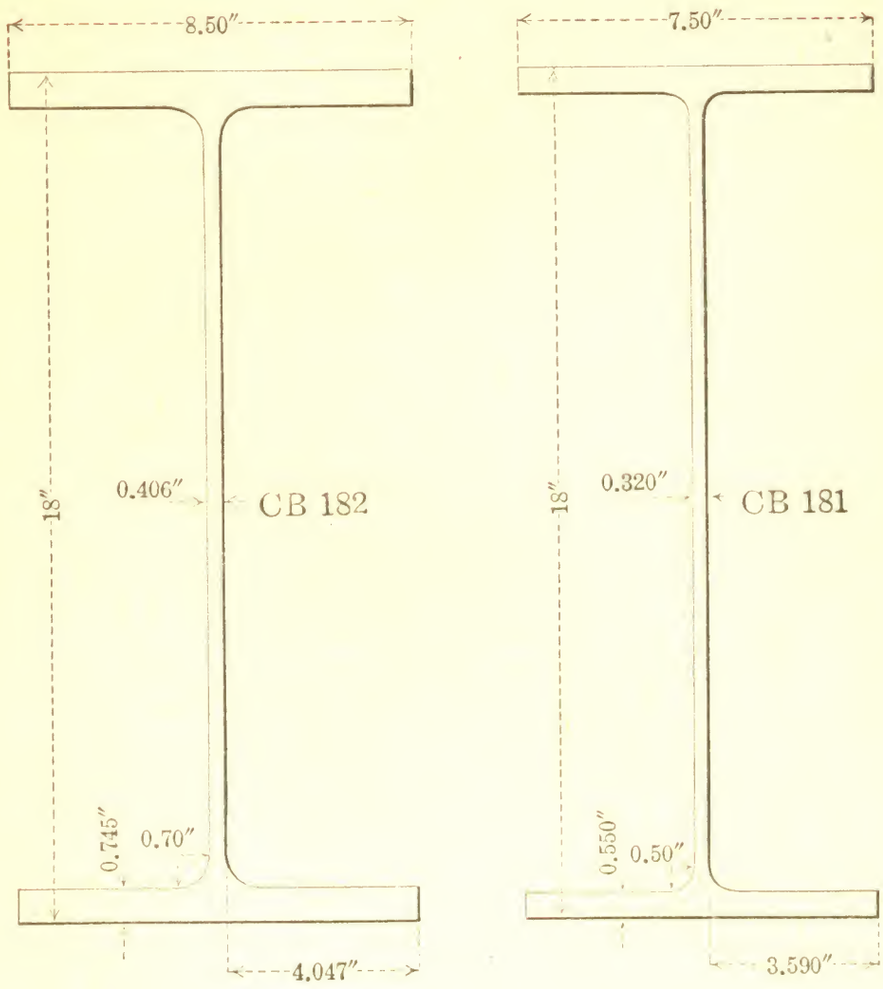
*Special Section Web Thickness 3/8″.

CARNEGIE BEAM SECTIONS—Continued



Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
CB 183	18.238	18 15/64	100	12.069	12 1/16	0.864	55/64	0.498	1/2
	18.120	18 1/8	93	12.034	12 1/32	0.805	13/16	0.463	15/32
	18.000	18	86	12.000	12	0.745	3/4	0.429	27/64

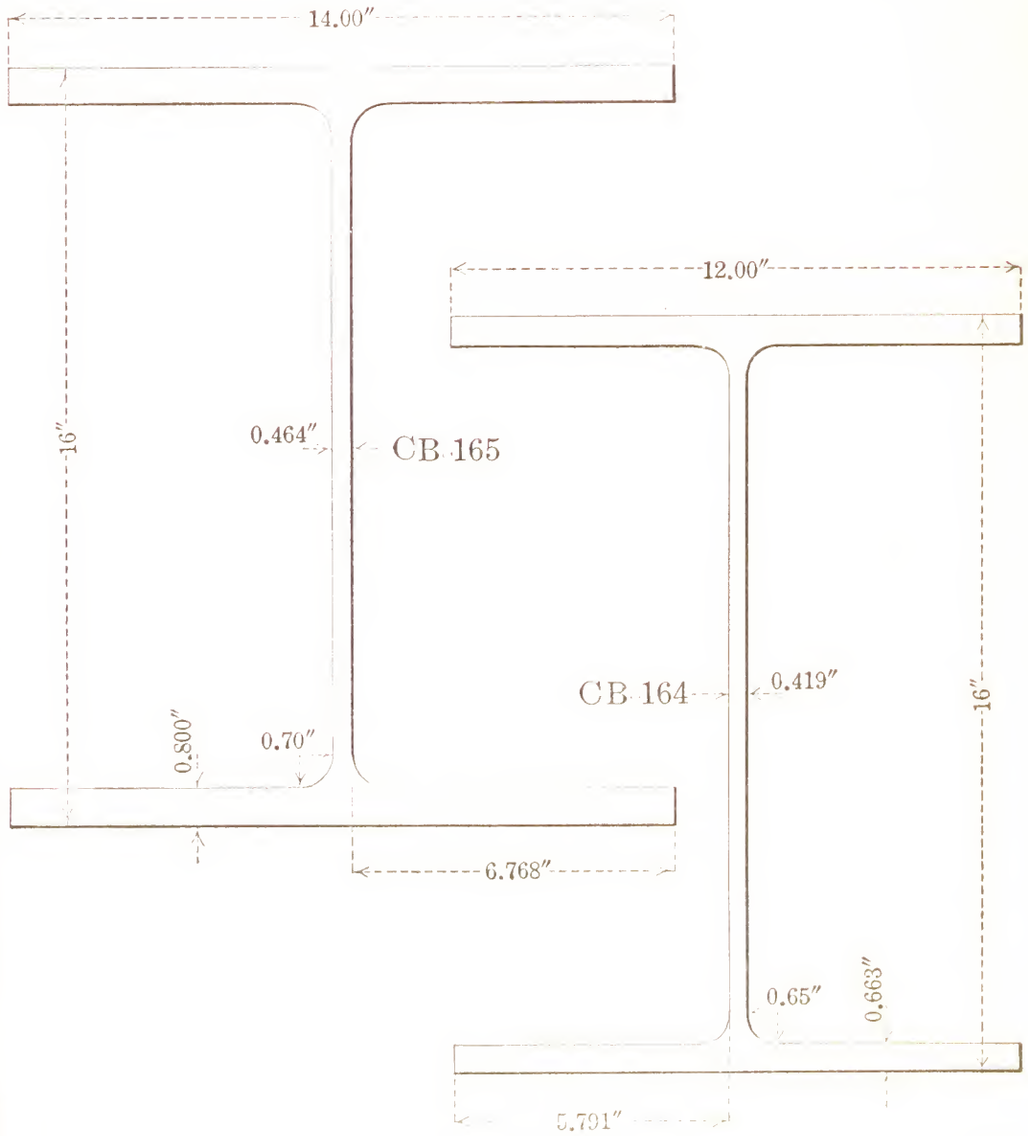
CARNEGIE BEAM SECTIONS—Continued



Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
CB 182	18.242	18 15/64	78	8.565	8 9/16	0.866	55/64	0.471	15/32
	18.110	18 7/64	72	8.530	8 17/32	0.800	51/64	0.436	7/16
	18.000	18	67	8.500	8 1/2	0.745	3/4	0.406	13/32
CB 181	18.252	18 1/4	58	7.573	7 37/64	0.676	43/64	0.393	25/64
	18.114	18 7/64	52	7.534	7 17/32	0.607	39/64	0.354	23/64
	18.000	18	47	7.500	7 1/2	0.550	35/64	0.320	5/16
	*18.024	18 1/32	51	7.555	7 9/16	0.562	9/16	0.375	3/8

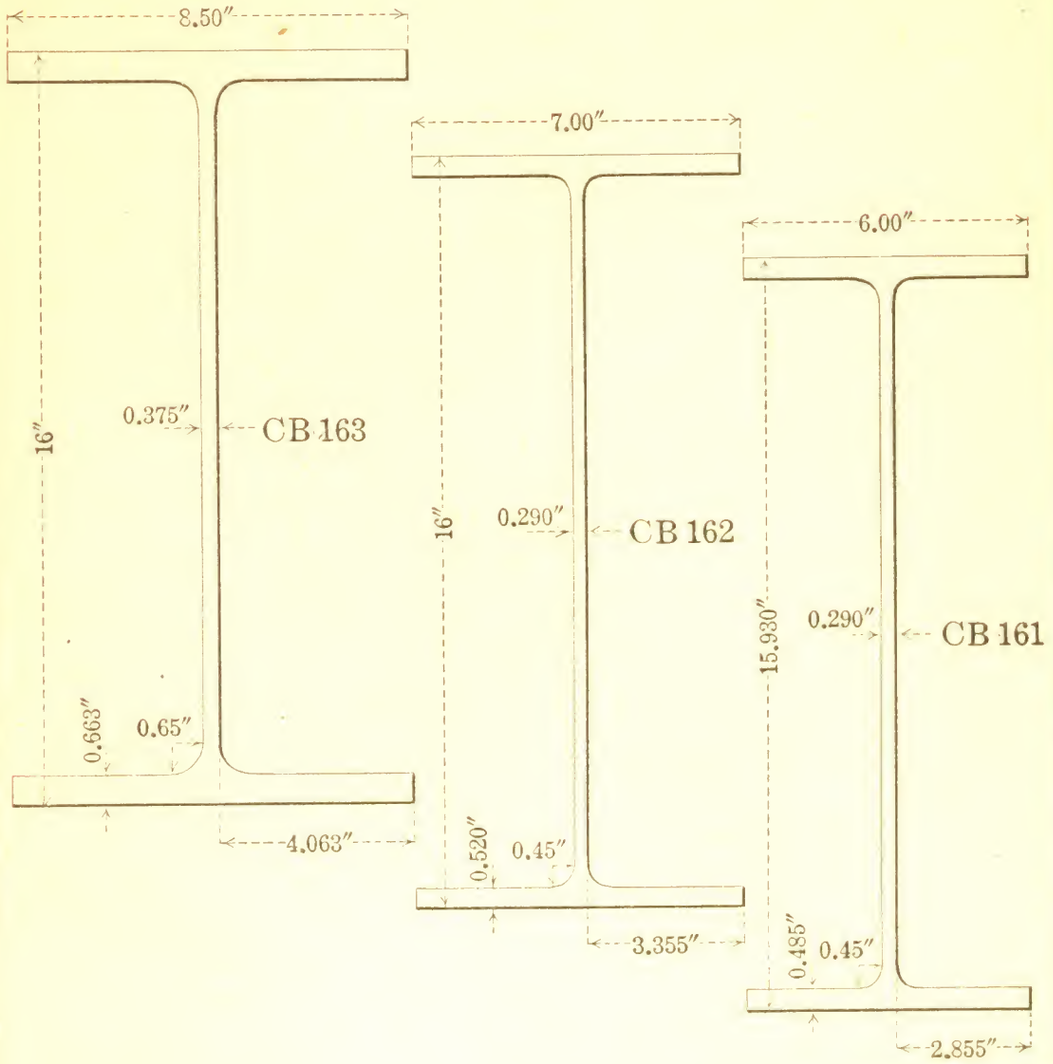
*Special Section Web Thickness 3/8″.

CARNEGIE BEAM SECTIONS—Continued



Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
	16.236	16 15/64	115	14.068	14 1/16	0.918	59/64	0.532	17/32
CB 165	16.110	16 7/64	107	14.032	14 1/32	0.855	55/64	0.496	1/2
	16.000	16	100	14.000	14	0.800	51/64	0.464	15/32
	16.240	16 15/64	90	12.076	12 5/64	0.783	25/32	0.495	1/2
CB 164	16.120	16 1/8	83	12.039	12 1/32	0.723	23/32	0.458	29/64
	16.000	16	76	12.000	12	0.663	21/32	0.419	27/64

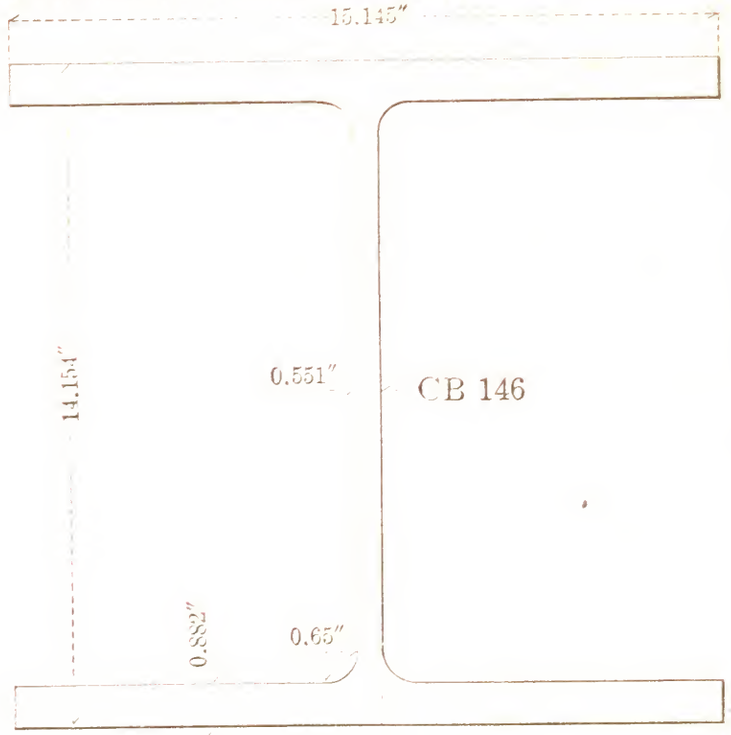
CARNEGIE BEAM SECTIONS—Continued



Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
CB 163	16.226	16 7/32	68	8.563	8 9/16	0.776	25/32	0.438	7/16
	16.114	16 7/64	63	8.531	8 17/32	0.720	23/32	0.406	13/32
	16.000	16	58	8.500	8 1/2	0.663	21/32	0.375	3/8
CB 162	16.254	16 1/4	50	7.072	7 5/64	0.647	41/64	0.362	23/64
	16.128	16 1/8	45	7.036	7 1/32	0.584	37/64	0.326	21/64
	16.000	16	40	7.000	7	0.520	33/64	0.290	19/64
	*15.934	15 15/16	43	7.085	7 5/64	0.487	31/64	0.375	3/8
CB 161	16.012	16 1/64	38	6.024	6 1/32	0.526	17/32	0.314	5/16
	15.930	15 15/16	35	6.000	6	0.485	31/64	0.290	19/64

*Special Section Web Thickness 3/8″.

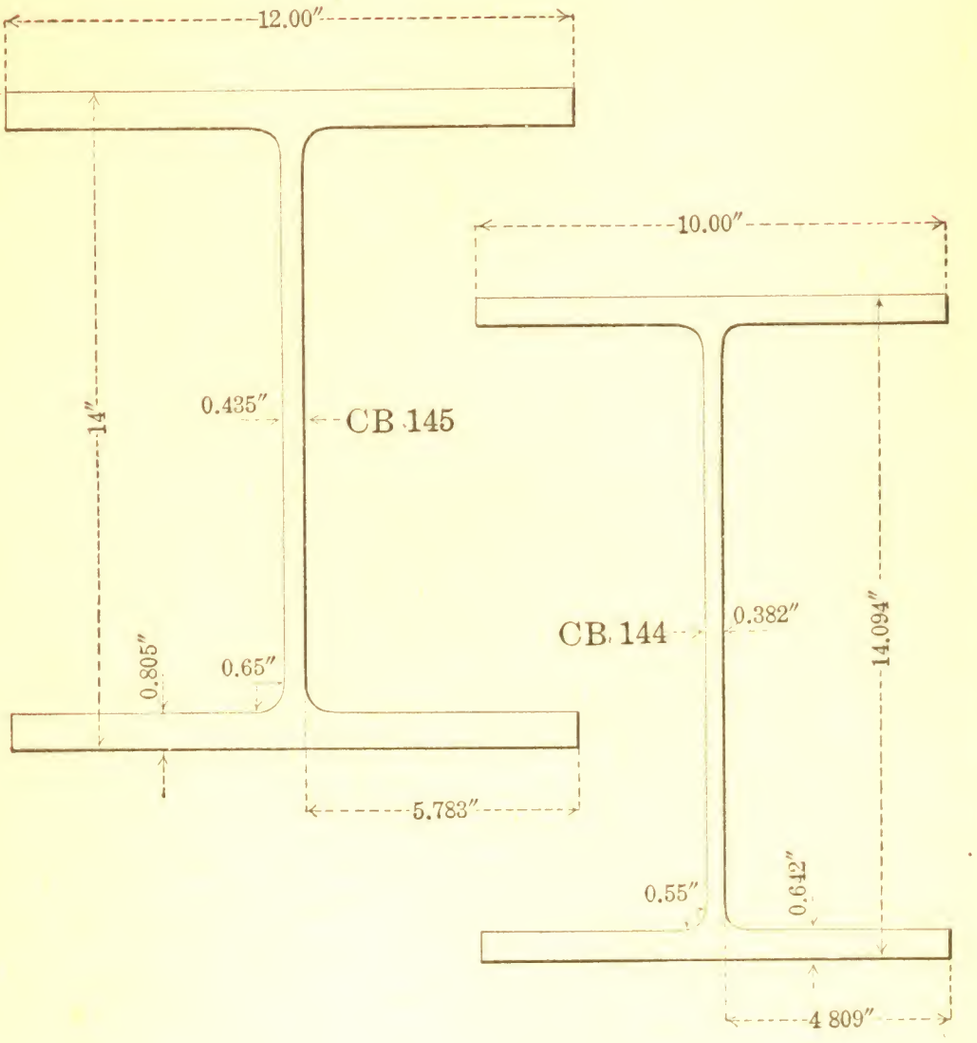
CARNEGIE BEAM SECTIONS—Continued



Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
CB 146	16.890	16 57/64	305	16.000	16	2.250	2 1/4	1.406	1 13/32
	16.752	16 3/4	295	15.956	15 61/64	2.181	2 3/16	1.362	1 23/64
	16.614	16 39/64	285	15.912	15 29/32	2.112	2 1/8	1.318	1 5/16
	16.472	16 15/32	275	15.870	15 7/8	2.041	2 1/64	1.276	1 9/32
	16.332	16 21/64	265	15.826	15 53/64	1.971	1 31/32	1.232	1 15/64
	16.192	16 3/16	255	15.781	15 25/32	1.901	1 29/32	1.187	1 3/16
	16.050	16 3/64	245	15.738	15 47/64	1.830	1 53/64	1.144	1 9/64
	15.908	15 29/32	235	15.693	15 11/16	1.759	1 49/64	1.099	1 3/32
	15.764	15 49/64	225	15.650	15 21/32	1.687	1 11/16	1.056	1 1/16
	15.622	15 5/8	215	15.604	15 39/64	1.616	1 39/64	1.010	1 1/64
	15.478	15 31/64	205	15.559	15 9/16	1.544	1 33/64	0.965	31/32
	15.334	15 21/64	195	15.513	15 33/64	1.472	1 15/32	0.919	59/64
	15.188	15 3/16	185	15.469	15 15/32	1.399	1 13/32	0.875	7/8
	15.042	15 3/64	175	15.424	15 27/64	1.326	1 21/64	0.830	53/64
	14.896	14 57/64	165	15.377	15 3/4	1.253	1 1/4	0.783	25/32
	14.750	14 3/4	155	15.330	15 21/64	1.180	1 3/16	0.736	47/64
	14.602	14 39/64	145	15.284	15 9/32	1.106	1 7/64	0.690	1 1/16
	14.452	14 29/64	135	15.239	15 15/64	1.031	1 1/32	0.645	41/64
	14.304	14 19/64	125	15.191	15 3/16	0.957	61/64	0.597	19/32
	14.154	14 9/32	115	15.145	15 9/64	0.882	7/8	0.551	35/64
	*14.162	14 5/32	131	15.468	15 15/32	0.886	57/64	0.874	7/8

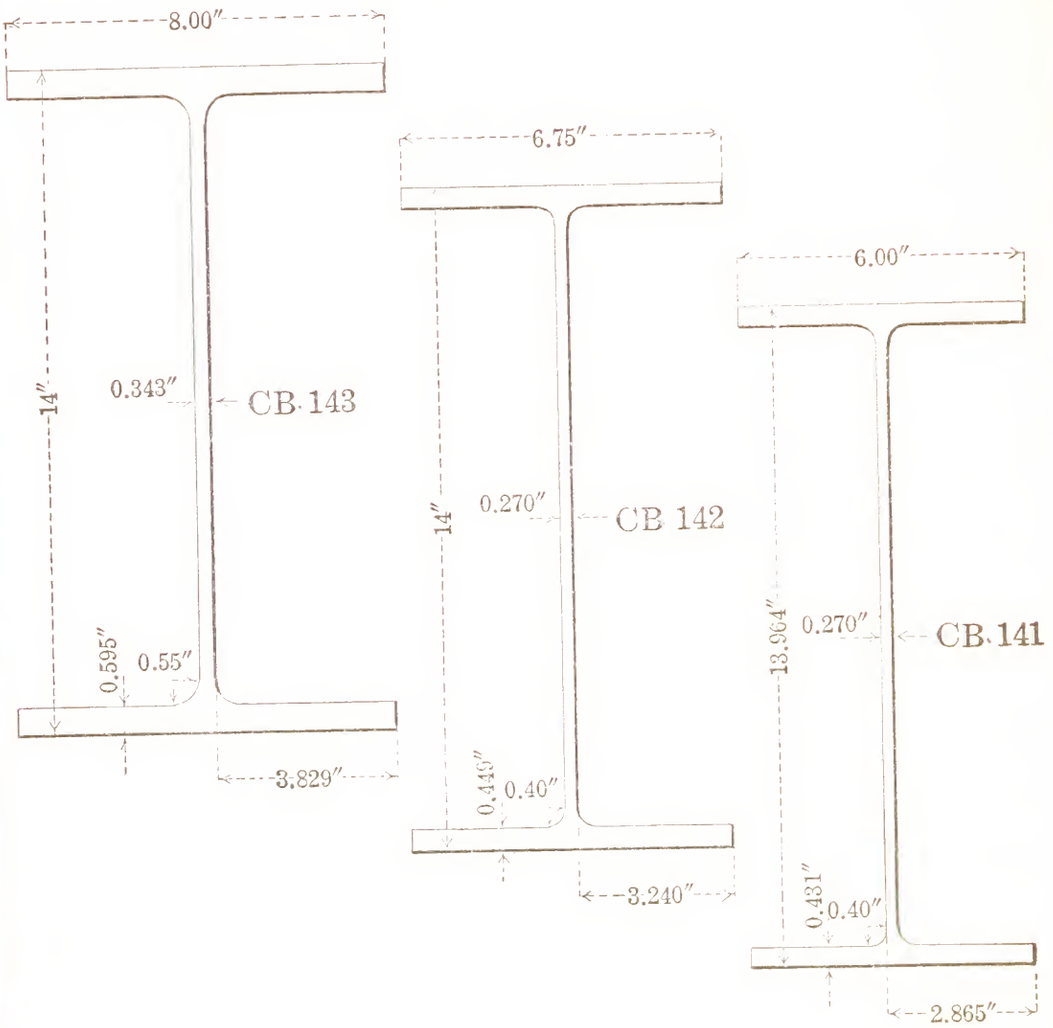
*Special Section for Column Core.

CARNEGIE BEAM SECTIONS—Continued



Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
CB 145	14.370	14 3/8	105	12.101	12 3/32	0.990	63/64	0.536	17/32
	14.186	14 3/16	95	12.050	12 3/64	0.898	57/64	0.485	31/64
	14.000	14	85	12.000	12	0.805	13/16	0.435	7/16
CB 144	14.382	14 3/8	75	10.086	10 3/32	0.786	25/32	0.468	15/32
	14.238	14 15/64	68	10.043	10 3/64	0.714	23/32	0.425	27/64
	14.094	14 3/32	61	10.000	10	0.642	41/64	0.382	3/8

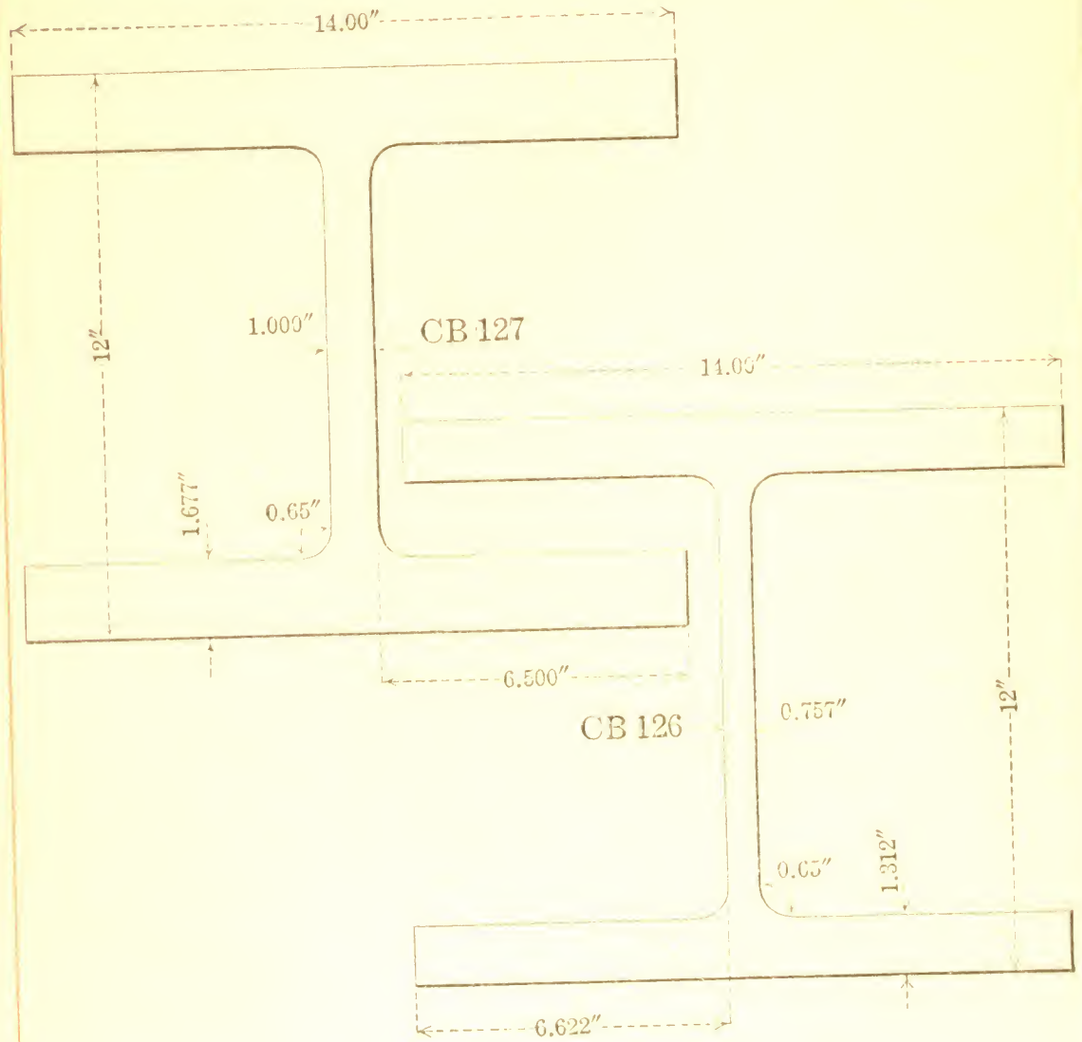
CARNEGIE BEAM SECTIONS—Continued



Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
	14.242	14 15/64	58	8.070	8 1/16	0.716	23/32	0.413	13/32
CB 143	14.122	14 1/8	53	8.035	8 1/32	0.656	21/32	0.378	3/8
	14.000	14	48	8.000	8	0.595	19/32	0.343	11/32
	14.240	14 15/64	42	6.822	6 53/64	0.569	9/16	0.342	11/32
	14.160	14 5/32	39	6.798	6 51/64	0.529	17/32	0.318	5/16
CB 142	14.080	14 5/64	36	6.774	6 25/32	0.489	31/64	0.294	19/64
	14.000	14	33	6.750	6 3/4	0.449	29/64	0.270	17/64
	*14.000	14	38	6.855	6 55/64	0.449	29/64	0.375	3/8
CB 141	13.964	13 31/32	30	6.000	6	0.431	7/16	0.270	17/64

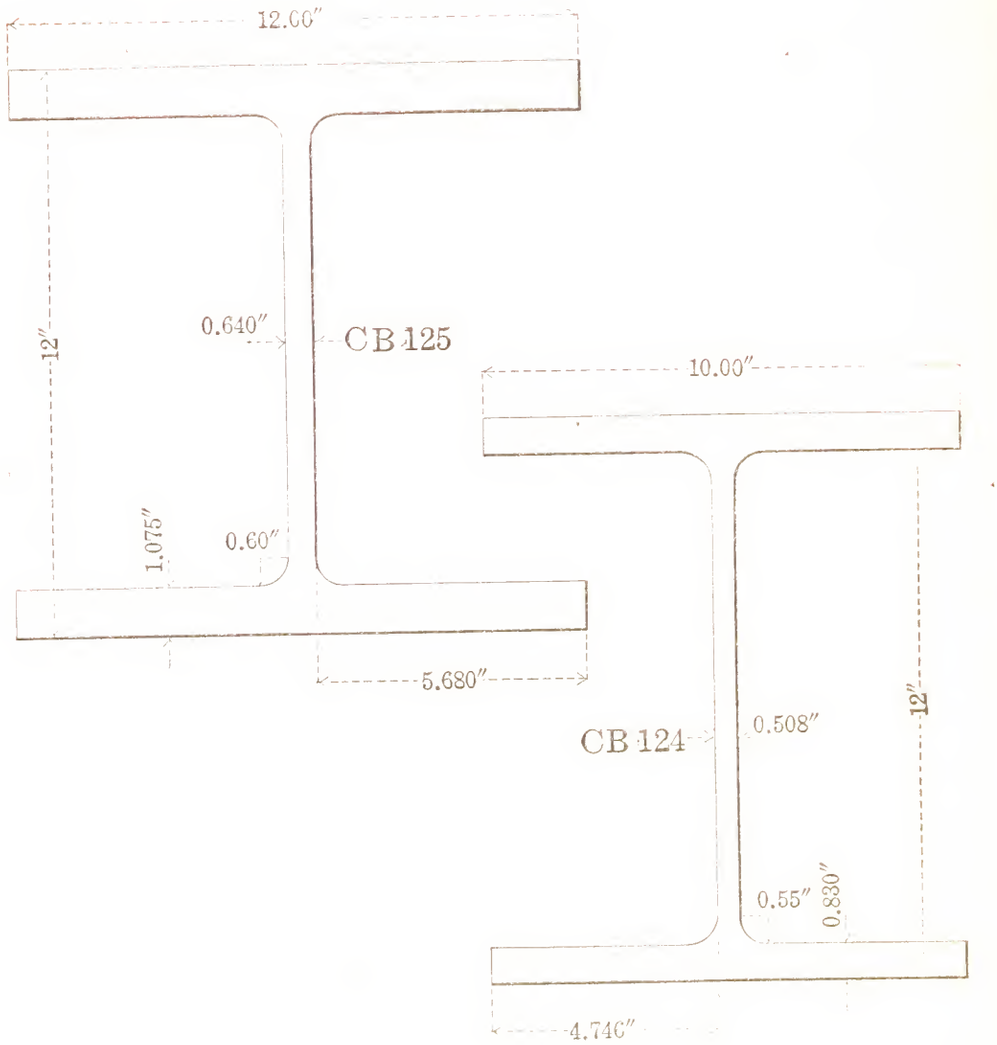
*Special Section Web Thickness 3/8″.

CARNEGIE BEAM SECTIONS—Continued



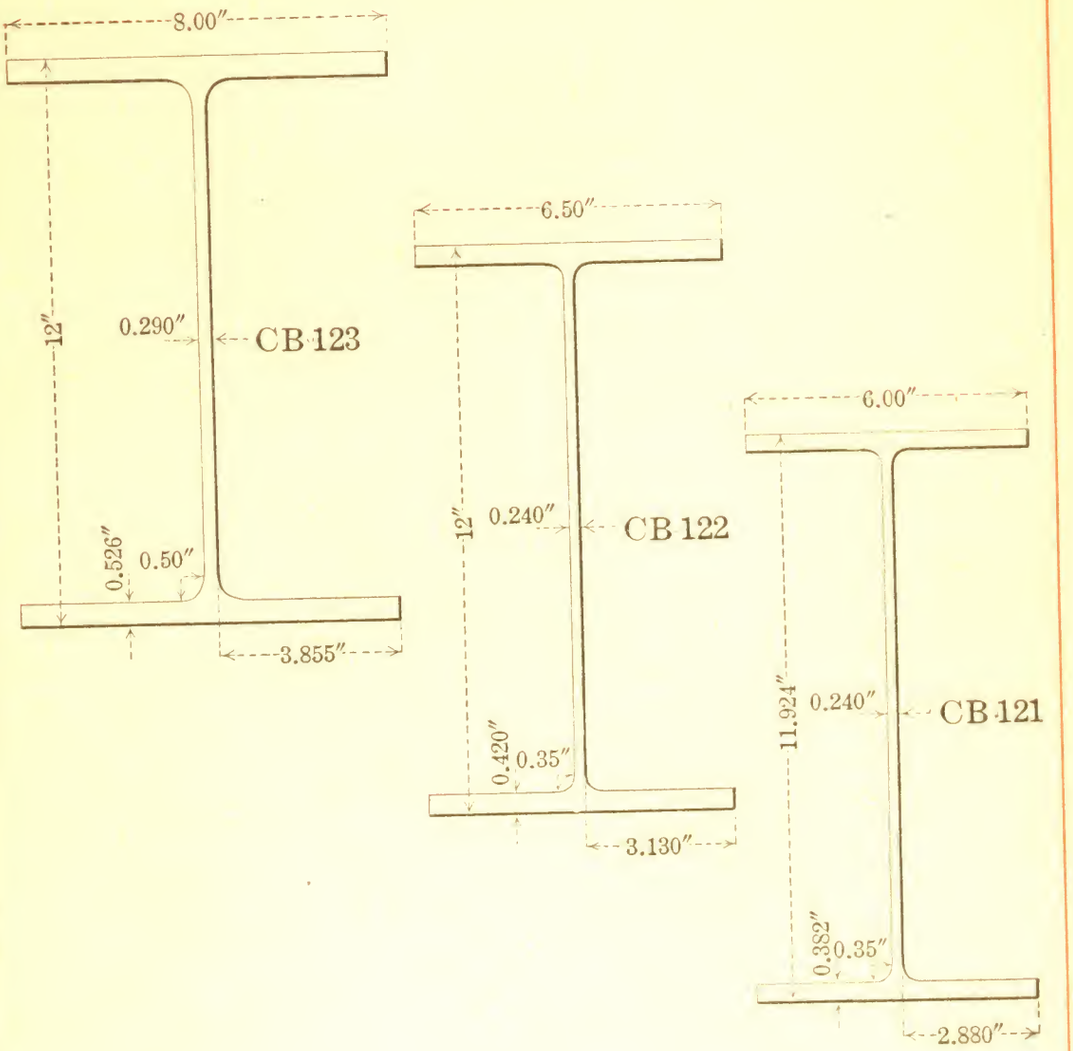
Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
CB 127	CORRECT DEPTH 12	12	230	14.980	$14\frac{63}{64}$	1.677	$1\frac{43}{64}$	1.980	$1\frac{63}{64}$
			220	14.735	$14\frac{47}{64}$			1.735	$1\frac{47}{64}$
			210	14.490	$14\frac{31}{64}$			1.490	$1\frac{31}{64}$
			200	14.245	$14\frac{1}{4}$			1.245	$1\frac{1}{4}$
			190	14.000	14			1.000	1
CB 126			180	14.735	$14\frac{47}{64}$	1.312	$1\frac{5}{16}$	1.492	$1\frac{31}{64}$
			170	14.490	$14\frac{31}{64}$			1.247	$1\frac{1}{4}$
			160	14.245	$14\frac{1}{4}$			1.002	1
			150	14.000	14			0.757	$\frac{3}{4}$

CARNEGIE BEAM SECTIONS—Continued



Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
CB 125	CONSTANT DEPTH 12	12	140	12.736	12 47/64	1.075	1 5/64	1.376	1 3/8
			130	12.491	12 31/64			1.131	1 1/8
			120	12.245	12 1/4			0.885	57/64
			110	12.000	12			0.640	41/64
CB 124			100	10.613	10 39/64	0.830	53/64	1.121	1 1/8
			91	10.392	10 25/64			0.900	29/32
			83	10.196	10 13/64			0.704	45/64
			75	10.000	10			0.508	33/64

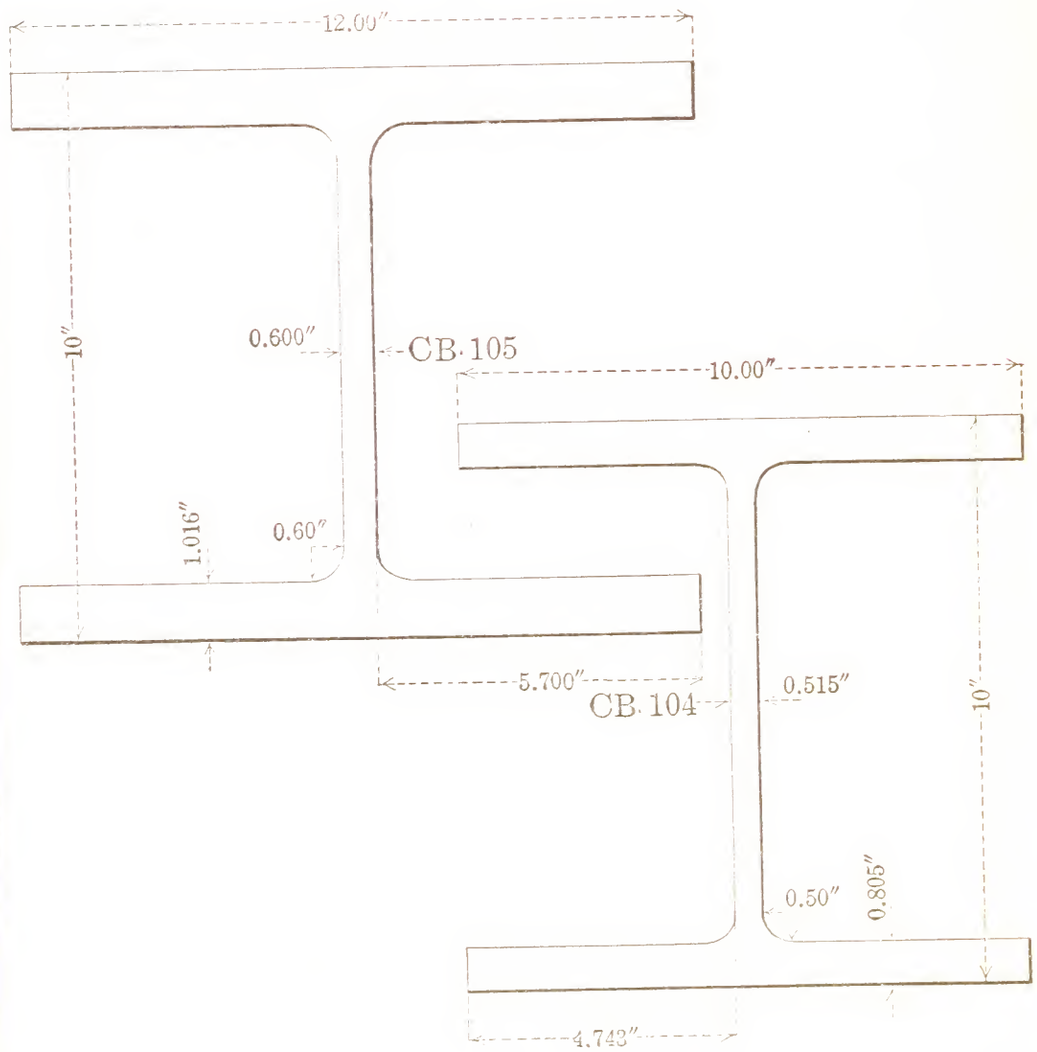
CARNEGIE BEAM SECTIONS—Continued



Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
CB 123	12.258	12 17/64	50	8.071	8 5/64	0.655	21/32	0.361	23/64
	12.130	12⅛	45	8.036	8 1/32	0.591	19/32	0.326	21/64
	12.000	12	40	8.000	8	0.526	17/32	0.290	19/64
CB 122	12.236	12 15/64	36	6.568	6 9/16	0.538	17/32	0.308	5/16
	12.118	12⅛	32	6.534	6 17/32	0.479	31/64	0.274	9/32
	12.000	12	28	6.500	6½	0.420	27/64	0.240	15/64
	*12.022	12 1/64	34	6.635	6 41/64	0.431	7/16	0.375	3/8
CB 121	11.924	11 59/64	25	6.000	6	0.382	3/8	0.240	15/64

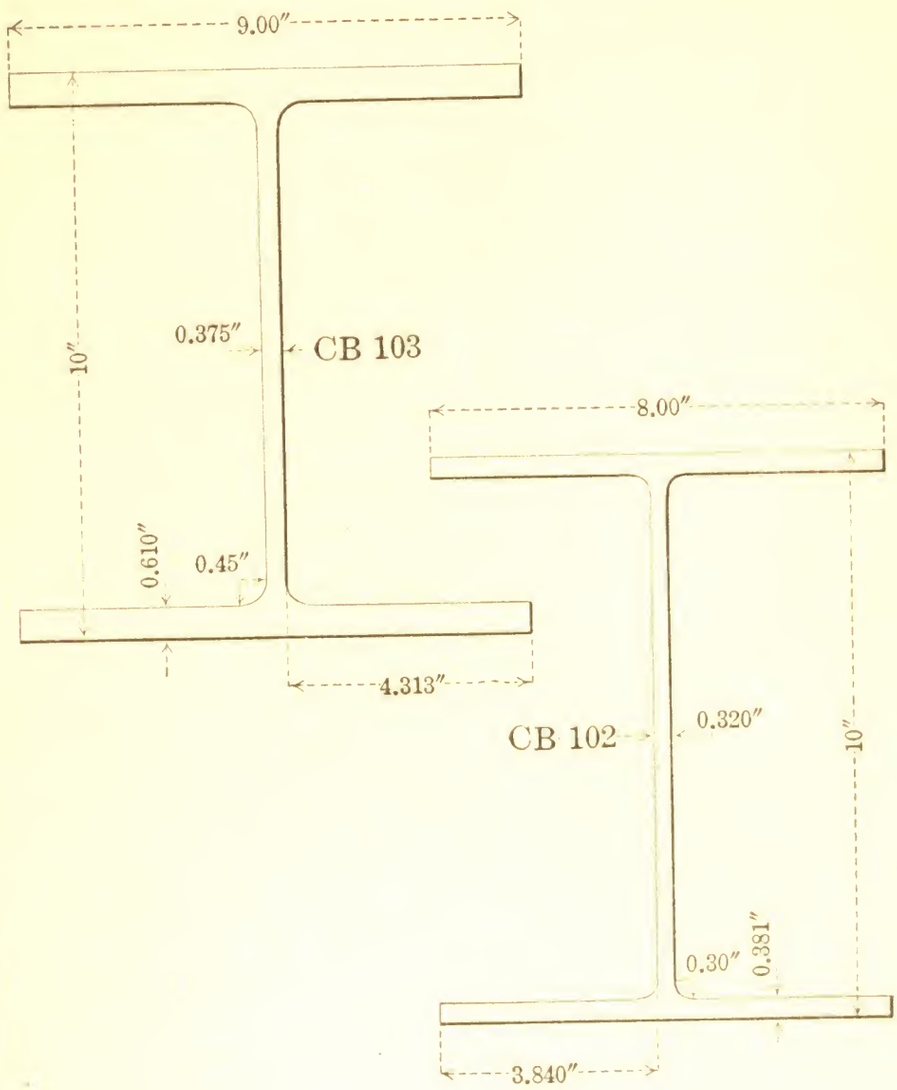
*Special Section Web Thickness 3/8″.

CARNEGIE BEAM SECTIONS—Continued



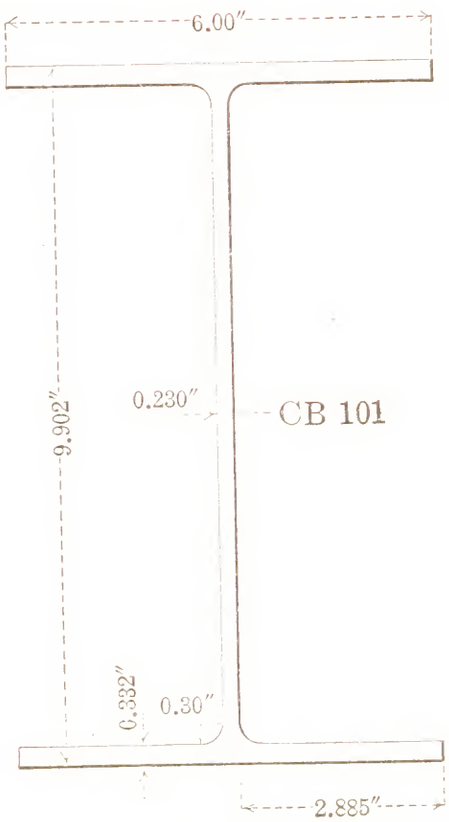
Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
CB 105	CONSTANT 10	10	140	13.177	$13\frac{11}{64}$	1.016	$1\frac{1}{64}$	1.777	$1\frac{25}{32}$
			132	12.941	$12\frac{15}{16}$			1.541	$1\frac{35}{64}$
			124	12.706	$12\frac{45}{64}$			1.306	$1\frac{5}{16}$
			116	12.471	$12\frac{15}{32}$			1.071	$1\frac{5}{64}$
			108	12.236	$12\frac{15}{64}$			0.836	$\frac{27}{32}$
			100	12.000	12			0.600	$\frac{19}{32}$
CB 104	DEPTH 10	10	92	10.647	$10\frac{41}{64}$	0.805	$\frac{13}{16}$	1.162	$\frac{37}{32}$
			84	10.411	$10\frac{13}{32}$			0.926	$\frac{59}{64}$
			77	10.206	$10\frac{13}{64}$			0.721	$\frac{23}{32}$
			70	10.000	10			0.515	$\frac{33}{64}$

CARNEGIE BEAM SECTIONS—Continued



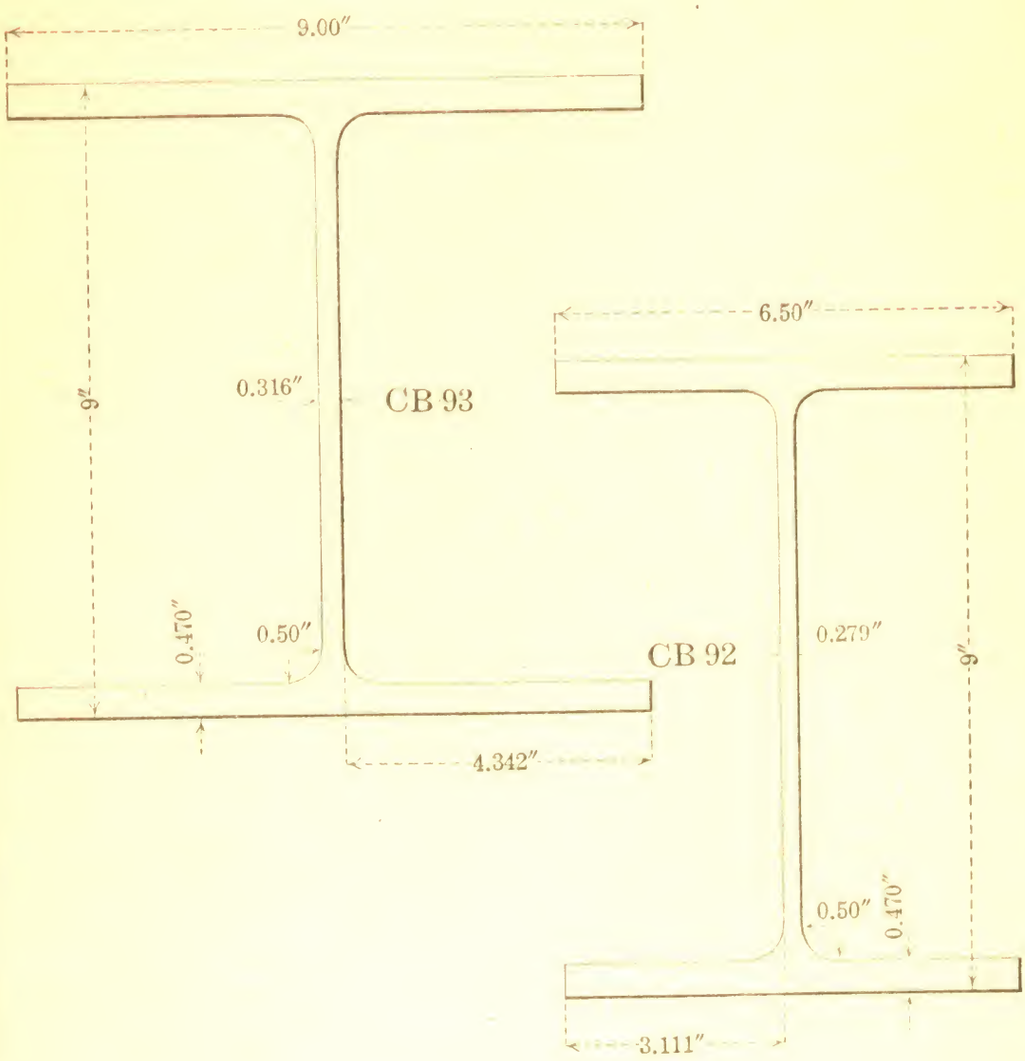
Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
CB 103	CONSTANT DEPTH 10	10	63	9.412	$9\frac{13}{32}$	0.610	$\frac{39}{64}$	0.787	$\frac{25}{32}$
			56	9.206	$9\frac{13}{64}$			0.581	$\frac{37}{64}$
			49	9.000	9			0.375	$\frac{3}{8}$
CB 102			42	8.324	$8\frac{21}{64}$	0.381	$\frac{3}{8}$	0.644	$\frac{41}{64}$
			36	8.147	$8\frac{9}{64}$			0.467	$\frac{15}{32}$
			31	8.000	8			0.320	$\frac{5}{16}$

CARNEGIE BEAM SECTIONS—Continued



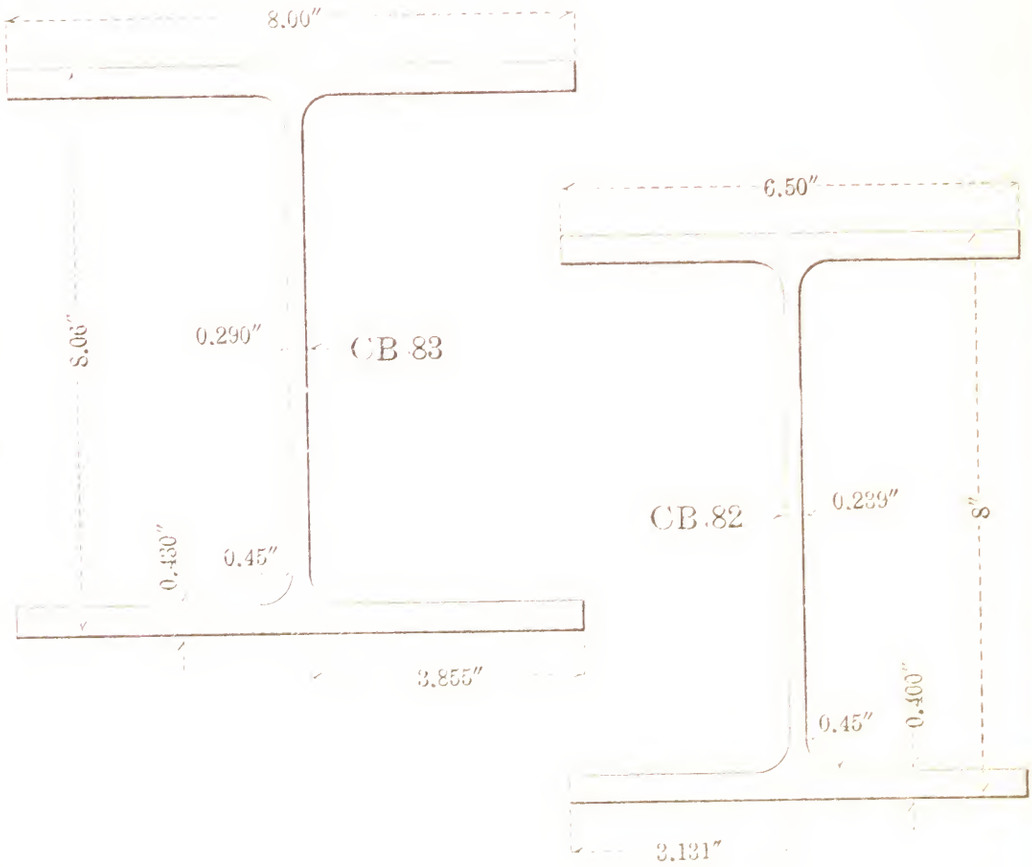
Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
CB 101	10.228	$10\frac{15}{64}$	30	6.068	$6\frac{1}{16}$	0.495	$\frac{1}{2}$	0.298	$\frac{19}{64}$
	10.098	$10\frac{3}{32}$	26	6.029	$6\frac{1}{32}$	0.430	$\frac{7}{16}$	0.259	$\frac{17}{64}$
	10.000	10	23	6.000	6	0.381	$\frac{3}{8}$	0.230	$\frac{15}{64}$
	9.902	$9\frac{29}{32}$	21	6.000	6	0.332	$\frac{21}{64}$	0.230	$\frac{15}{64}$

CARNEGIE BEAM SECTIONS—Continued



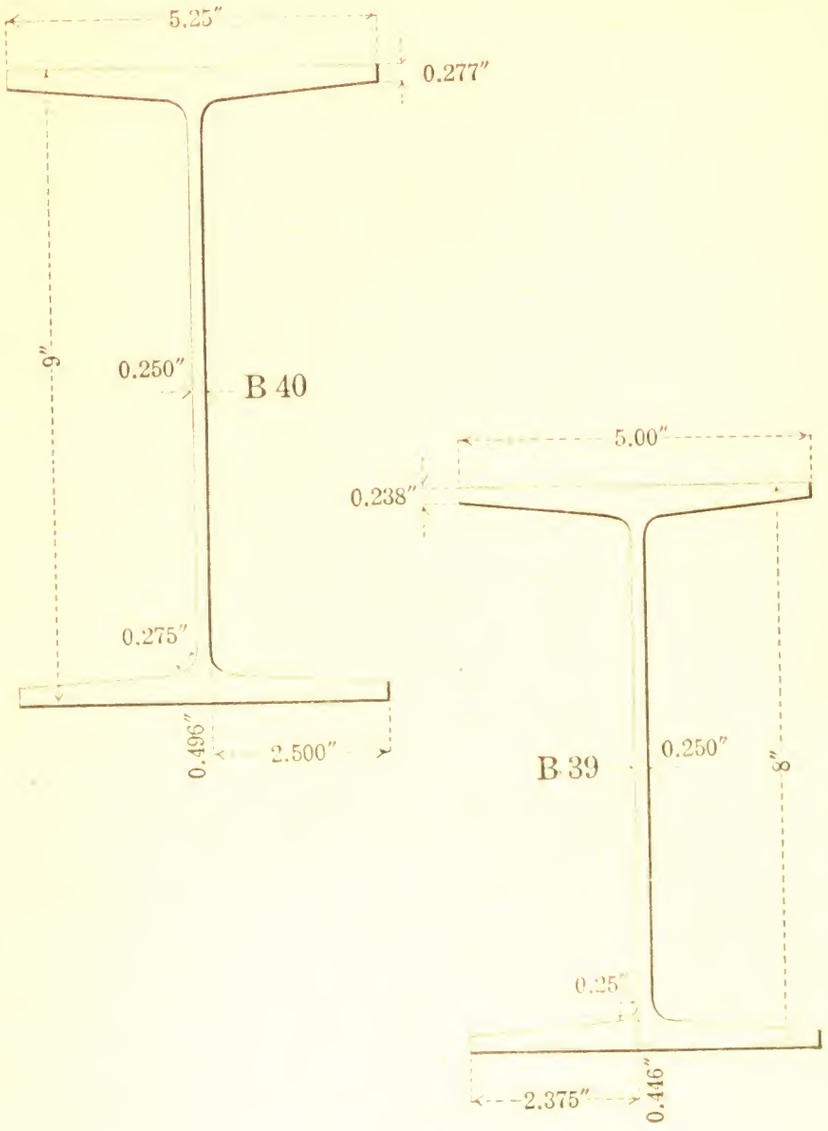
Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
	9.242	9 15/64	48	9.082	9 5/64	0.591	19/32	0.398	25/64
CB 93	9.122	9 1/8	43	9.041	9 3/64	0.531	17/32	0.357	23/64
	9.000	9	38	9.000	9	0.470	15/32	0.316	5/16
	9.192	9 3/16	35	6.556	6 9/16	0.566	9/16	0.335	21/64
CB 92	9.096	9 3/32	32	6.528	6 17/32	0.518	33/64	0.307	5/16
	9.000	9	29	6.500	6 1/2	0.470	15/32	0.279	9/32

CARNEGIE BEAM SECTIONS—Concluded



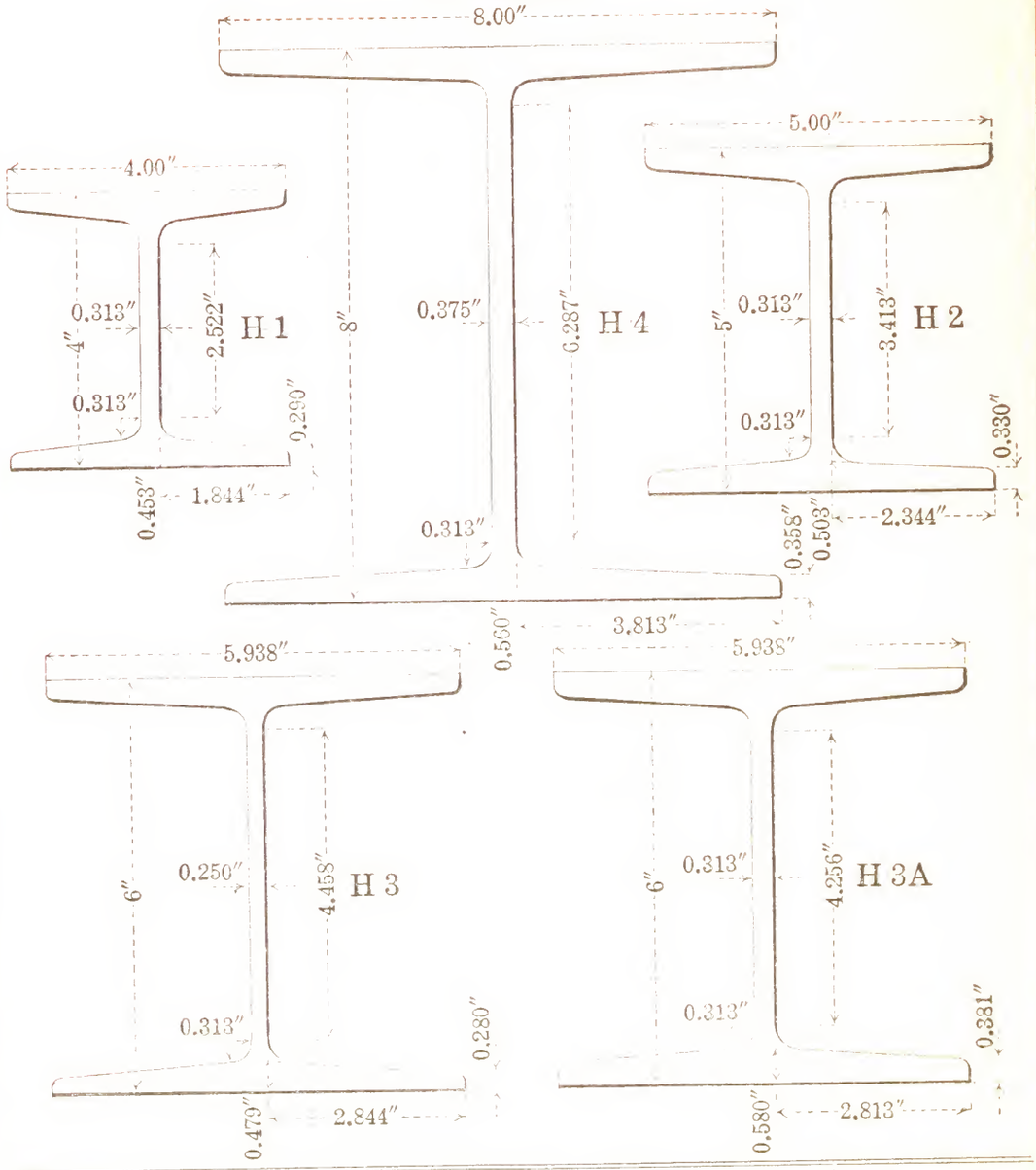
Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
CB 83	9.606	9 39/64	90	8.520	8 33/64	1.203	1 13/64	0.810	13/16
	9.456	9 29/64	84	8.469	8 15/32	1.128	1 1/8	0.759	49/64
	9.302	9 19/64	78	8.418	8 27/64	1.051	1 3/64	0.708	45/64
	9.150	9 5/32	72	8.366	8 23/64	0.975	31/32	0.656	21/32
	8.994	9	66	8.314	8 5/16	0.897	29/64	0.604	39/64
	8.838	8 27/32	60	8.261	8 17/64	0.819	13/16	0.551	35/64
	8.680	8 11/16	54	8.208	8 13/64	0.740	47/64	0.498	1/2
	8.520	8 33/64	48	8.155	8 5/32	0.660	21/32	0.445	7/16
	8.360	8 23/64	42	8.100	8 3/32	0.580	37/64	0.390	25/64
	8.198	8 13/64	36	8.046	8 3/64	0.499	1/2	0.336	11/32
	8.060	8 1/16	31	8.000	8	0.430	7/16	0.290	19/64
CB 82	8.196	8 13/64	30	6.559	6 35/64	0.498	1/2	0.298	19/64
	8.098	8 3/32	27	6.529	6 33/64	0.449	29/64	0.268	17/64
	8.000	8	24	6.500	6 1/2	0.400	13/32	0.239	15/64

STANDARD MILL SECTIONS



Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Mean Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
B 40	9	9	25	5.380	5 3/8	0.3865	25/64	0.380	3/8
			21	5.250	5 1/4			0.250	1/4
B 39	8	8	21	5.110	5 7/64	0.342	11/32	0.360	23/64
			18	5.000	5			0.250	1/4

H-BEAMS



Section Index	Depth of Section, Inches		Weight per Foot, Pounds	Flange Width, Inches		Mean Flange Thickness, Inches		Web Thickness, Inches	
	Decimal	Fraction		Decimal	Fraction	Decimal	Fraction	Decimal	Fraction
H 4	8	8	37.7	8.125	8⅛	0.459	29/64	0.500	½
			34.3	8.000	8			0.375	⅜
			32.6	7.938	7 15/16			0.313	5/16
H 3A	6	6	27.5	6.063	6 1/16	0.481	31/64	0.438	7/16
			25.0	5.938	5 15/16			0.313	5/16
H 3	6	6	22.5	6.063	6 1/16	0.379	⅜	0.375	⅜
			20.0	5.938	5 15/16			0.250	¼
H 2	5	5	18.9	5.000	5	0.417	27/64	0.313	5/16
H 1	4	4	13.8	4.000	4	0.372	⅜	0.313	5/16

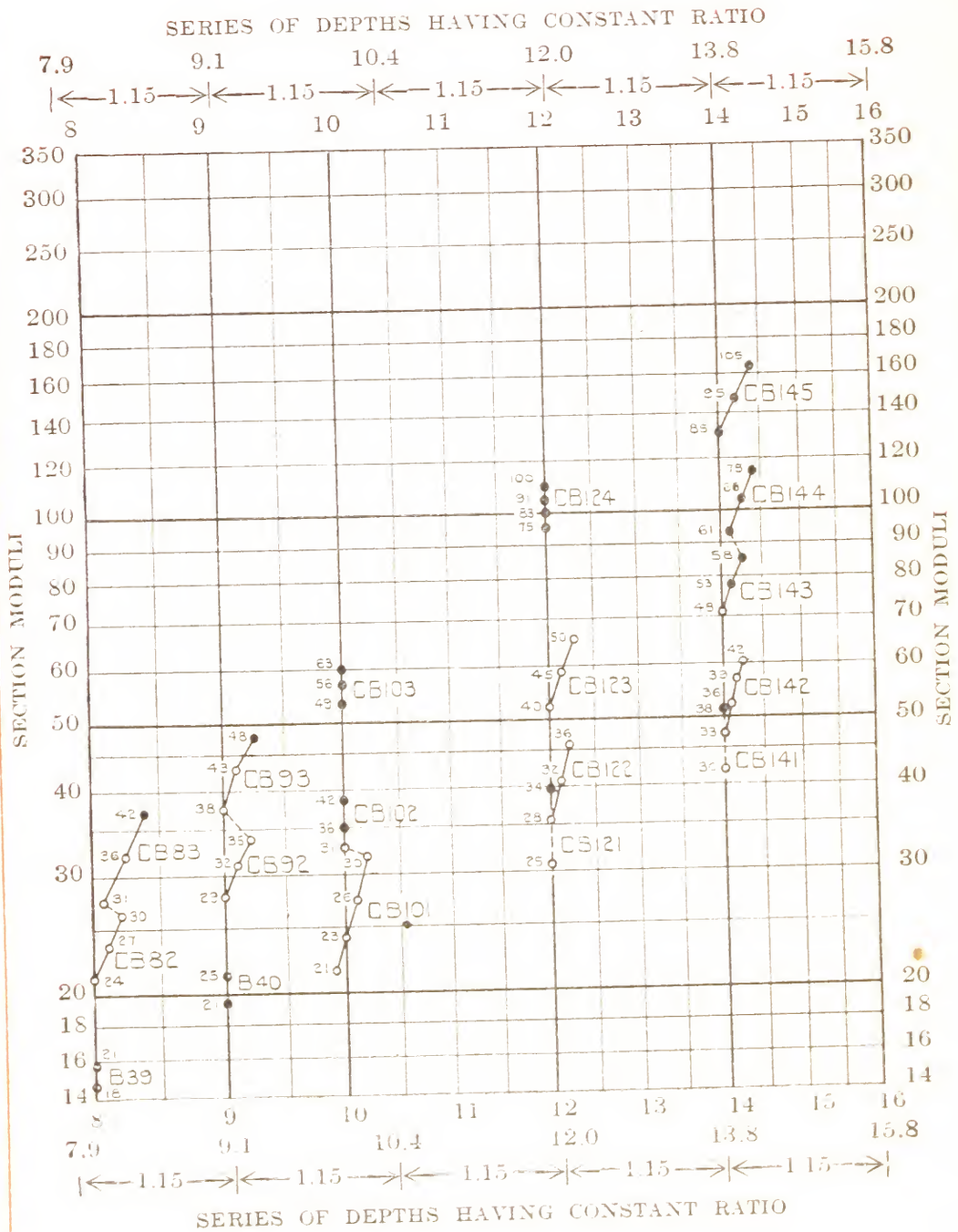
Full information as to uses of H-Beams is given in pamphlet entitled "Steel Mine Timbers."

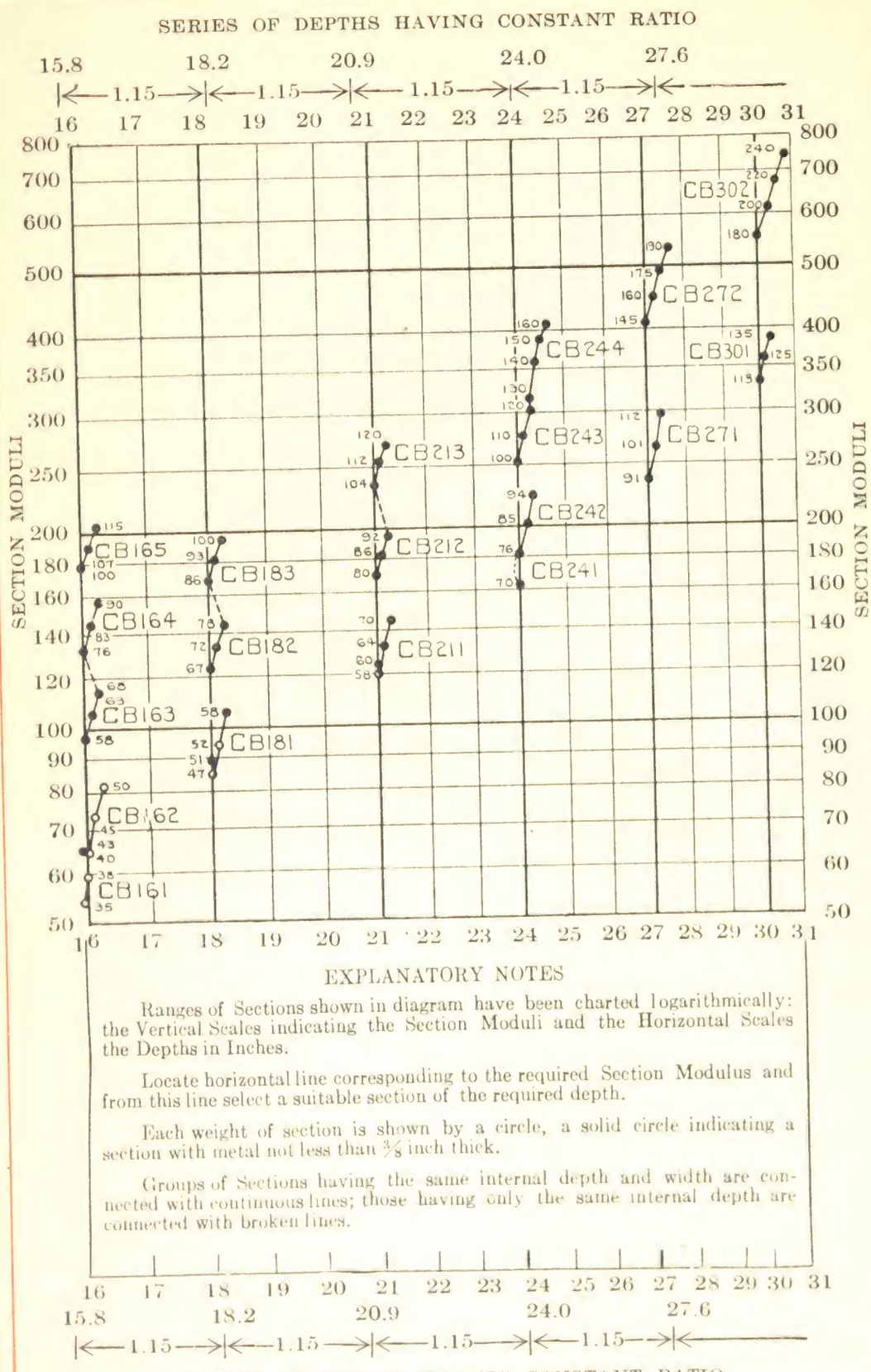
CARNEGIE
BEAM SECTIONS

ELEMENTS AND PROPERTIES

CARNEGIE BEAM SECTIONS

RANGE OF SECTIONS
SELECTED FOR USE AS BEAMS




SERIES OF DEPTHS HAVING CONSTANT RATIO
15.8
18.2
20.9
24.0
27.6
1.15
1.15
1.15
1.15
16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
SECTION MODULI
800 700 600 500 400 350 300 250 200 180 160 140 120 100 90 80 70 60 50
CB3021
CB272
CB301
CB244
CB271
CB243
CB213
CB242
CB212
CB241
CB211
CB183
CB165
CB164
CB182
CB163
CB181
CB162
CB161
EXPLANATORY NOTES
Ranges of Sections shown in diagram have been charted logarithmically: the Vertical Scales indicating the Section Moduli and the Horizontal Scales the Depths in Inches.
Locate horizontal line corresponding to the required Section Modulus and from this line select a suitable section of the required depth.
Each weight of section is shown by a circle, a solid circle indicating a section with metal not less than 3/8 inch thick.
Groups of Sections having the same internal depth and width are connected with continuous lines; those having only the same internal depth are connected with broken lines.
SERIES OF DEPTHS HAVING CONSTANT RATIO

CARNEGIE BEAM SECTIONS

Beam Sections
Comparative Table of Section Moduli

Section Modulus	30 In.		27 In.		24 In.		21 In.	
	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.
738	240							
676	220	CB 302						
615	200							
553	180							
535			190					
492			175	CB 272				
450			160					
411					160			
408			145					
390	135	CB 301						
385					150	CB 244		
361	125							
359					140			
334					130			
332	115							
302				CB 271	120			
293			112					
277					110			
272						CB 243	120	
265			101					
254							112	CB 213
252					100			
238			91					

Section Modulus	24 In.		21 In.		18 In.		16 In.		14 In.	
	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.
236			104							
225	94			CB 213						
205							115			
203	85									
196		CB 242	92		100					
191							107	CB 165		
184			86	CB 212		CB 183				
182	76				93					
178							100			
171			80							
168					86					
163	70								105	
157							90			CB 145
147		CB 241							95	
145			70	CB 211	78		83	CB 164		
133			64		72	CB 182	76			
132									85	
124			60		67					
120			58							
115									75	CB 144
114							68	CB 163		

CARNEGIE BEAM SECTIONS—Continued

Beam Sections

Comparative Table of Section Moduli

Section Modulus	18 In.		16 In.		14 In.		12 In.		10 In.	
	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.
110							100			
105	58		63				91			
104					68					
100				CB 163		CB 144	83	CB 124		
97.1			58							
95.1		CB 181					75			
94.4	52									
93.1					61					
89.9	51									
85.6					58					
85.4	47									
81.9			50	CB 162		CB 143				
78.2					53					
73.8			45							
70.9					48					
65.7			43							
65.6			40							
65.4							50	CB 123		
60.6					42					
60.1									63	
59.3			38	CB 161						
58.8							45			CB 103
56.6									56	
56.3					39	CB 142				
54.7			35							
53.2									49	
52.3							40			
51.9					36					
51.1					38					

Section Modulus	14 In.		12 In.		10 In.		9 In.		8 In.	
	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.	Wt.	No.
47.8		CB 142					48			
47.6	33									
45.8			36							
42.9							43			
41.8	30	CB 141						CB 93		
40.7			32							
39.6			34	CB 122						
38.1					42					
37.9							38			
37.4						CB 102			42	
35.6			28							
35.1					36					
33.8							35			
32.7					31					
32.0								CB 92	36	CB 83
31.9					30					
30.9							32			
30.7			25							
28.0							29			
27.6					26	CB 101				
27.5									31	
26.3				CB 121					30	
24.4					23					
23.7									27	CB 82
21.7					21					
21.2							25			
21.1									24	
19.5							21	B 40		
15.9									21	B 39
14.7									18	

CARNEGIE BEAM SECTIONS—Continued

Column Sections

Comparative Table of Radii of Gyration and Areas

Area	14 In. Weight	14 In. $r_{2\text{-}2}$	14 In. No.	12 In. Weight	12 In. $r_{2\text{-}2}$	12 In. No.	10 In. Weight	10 In. $r_{2\text{-}2}$	10 In. No.	Area
89.70	305	4.14								89.70
86.76	295	4.13								86.76
83.82	285	4.12								83.82
80.87	275	4.10								80.87
77.93	265	4.09								77.93
74.99	255	4.08								74.99
72.06	245	4.06								72.06
69.11	235	4.05								69.11
67.64				230	3.74					67.64
66.17	225	4.04								66.17
64.70				220	3.73					64.70
63.23	215	4.03				CB 127				63.23
61.76				210	3.72					61.76
60.28	205	4.01								60.28
58.82				200	3.71					58.82
57.34	195	4.00								57.34
55.88				190	3.71					55.88
54.41	185	3.98								54.41
52.94			CB 146	180	3.64					52.94
51.47	175	3.97								51.47
50.00				170	3.65	CB 126				50.00
48.52	165	3.96								48.52
47.06				160	3.67					47.06
45.58	155	3.94								45.58
44.12				150	3.69					44.12
42.64	145	3.93								42.64
41.17				140	3.91		140	3.08		41.17
39.70	135	3.92								39.70
38.81							132	3.09		38.81
38.52	131	3.77								38.52
38.24				130	3.03	CB 125				38.24
36.75	125	3.90							CB 105	36.75
36.46							124	3.09		36.46
35.28				120	3.06					35.28
34.11							116	3.11		34.11
33.82	115	3.89								33.82
32.34				110	3.10					32.34
31.76							108	3.13		31.76
30.88	105	3.08	CB 145							30.88
29.40				100	2.39		100	3.16		29.40
27.93	95	3.06				CB 124				27.93
27.06							92	2.50	CB 104	27.06
26.76				91	2.41					26.76

CARNEGIE BEAM SECTIONS—Continued

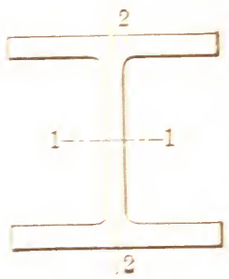
Column Sections

Comparative Table of Radii of Gyration and Areas

Area	14 In.			12 In.			10 In.			9 In.			8 In.			Area
	Wt.	r 2-2	No.	Wt.	r 2-2	No.	Wt.	r 2-2	No.	Wt.	r 2-2	No.	Wt.	r 2-2	No.	
26.47													90	2.17		26.47
24.99	85	3.05	CB 145													24.99
24.71													84	2.15		24.71
24.70						CB 124	84	2.48	CB 104							24.70
24.41				83	2.45											24.41
22.93													78	2.14		22.93
22.65							77	2.51								22.65
22.05	75	2.47	CB 144	75	2.51											22.05
21.17													72	2.12		21.17
20.59							70	2.55								20.59
19.99	68	2.46														19.99
19.40													66	2.11		19.40
18.53							63	2.14								18.53
17.94	61	2.44													CB 83	17.94
17.63													60	2.09		17.63
17.05	58	1.92							CB 103							17.05
16.47							56	2.20								16.47
15.87			CB 143										54	2.07		15.87
15.59	53	1.91				CB 123										15.59
14.69				50	1.98											14.69
14.41							49	2.27								14.41
14.12	48	1.90														14.12
14.11										48	2.29					14.11
14.10													48	2.06		14.10
13.23				45	1.97											13.23
12.65										43	2.28	CB 93				12.65
12.35	42	1.56					42	1.73								12.35
12.34													42	2.04		12.34
11.76			CB 142	40	1.95											11.76
11.47	39	1.56														11.47
11.17										38	2.26					11.17
10.59				36	1.55				CB 102							10.59
10.58	36	1.55					36	1.80					36	2.02		10.58
10.29										35	1.61					10.29
9.71	33	1.54				CB 122										9.71
9.40				32	1.54					32	1.60	CB 92				9.40
9.11							31	1.89								9.11
9.10													31	2.01		9.10
8.81													30	1.63		8.81
8.53										29	1.59				CB 82	8.53
8.22				28	1.53											8.22
7.93													27	1.62		7.93
7.06													24	1.61		7.06

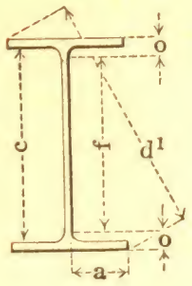
CARNEGIE BEAM SECTIONS—Continued

ELEMENTS OF SECTIONS DECIMAL

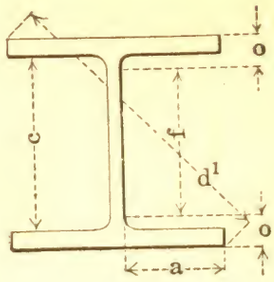


Section Letter and Nominal Depth	Weight per Foot	Area of Section	Depth of Section	Flange Width	Web Thickness	Axis 1-1			Axis 2-2		
						I	S	r	I	S	r
	lbs.	In.²	In.	In.	In.	In.⁴	In.³	In.	In.⁴	In.³	In.
CB 302 30″	240	70.58	30.781	14.215	.888	11356.0	737.9	12.69	766.9	107.9	3.30
	220	64.70	30.522	14.146	.816	10320.4	676.3	12.63	693.9	98.1	3.28
	200	58.82	30.263	14.078	.743	9305.7	615.0	12.58	622.7	88.5	3.25
	180	52.93	30.000	14.000	.670	8301.4	553.4	12.52	552.7	79.0	3.23
CB 301 30″	135	39.70	30.298	10.591	.621	5907.3	389.9	12.20	204.8	38.7	2.27
	125	36.75	30.143	10.546	.576	5441.7	361.0	12.17	187.4	35.5	2.26
	115	33.81	30.000	10.500	.530	4985.3	332.4	12.14	170.6	32.5	2.25
CB 272 27″	190	55.87	27.593	14.176	.756	7376.9	534.6	11.49	610.7	86.2	3.31
	175	51.47	27.400	14.118	.698	6746.8	492.5	11.45	556.6	78.9	3.29
	160	47.04	27.200	14.059	.639	6121.8	450.1	11.41	503.2	71.6	3.27
	145	42.64	27.000	14.000	.580	5508.7	408.1	11.37	451.0	64.4	3.25
CB 271 27″	112	32.94	27.340	9.855	.566	4007.6	293.2	11.03	148.0	30.0	2.12
	101	29.70	27.166	9.799	.510	3595.7	264.7	11.00	131.7	26.9	2.11
	91	26.76	27.000	9.750	.461	3217.0	238.3	10.97	116.9	24.0	2.09
CB 244 24″	160	47.06	24.656	14.123	.870	5065.7	410.8	10.38	526.0	74.5	3.34
	150	44.10	24.525	14.062	.829	4720.5	384.9	10.35	489.3	69.5	3.33
	140	41.16	24.388	14.041	.788	4380.4	359.2	10.32	453.1	64.5	3.32
	130	38.23	24.250	14.000	.747	4045.1	333.6	10.29	417.5	59.6	3.31
CB 243 24″	120	35.29	24.310	12.089	.539	3669.7	301.9	10.20	277.6	46.0	2.81
	110	32.34	24.156	12.044	.494	3343.5	276.8	10.17	252.2	41.9	2.79
	100	29.41	24.000	12.000	.450	3020.5	251.7	10.14	226.9	37.8	2.78
CB 242 24″	94	27.64	24.305	9.844	.499	2734.9	225.0	9.95	130.2	26.4	2.17
	85	24.99	24.154	9.797	.452	2457.2	203.5	9.92	116.2	23.7	2.16
	75	22.35	24.000	9.750	.405	2184.4	182.0	9.89	102.6	21.0	2.14
CB 241 24″	70	20.58	24.000	8.500	.406	1953.8	162.8	9.74	68.0	16.0	1.82
CB 213 21″	120	35.28	21.248	13.070	.535	2890.9	272.1	9.05	349.7	53.5	3.15
	112	32.93	21.126	13.034	.499	2683.7	254.1	9.03	324.3	49.8	3.14
	104	30.57	21.000	13.000	.465	2475.3	235.7	9.00	298.7	45.9	3.13
CB 212 21″	92	27.05	21.240	9.064	.502	2056.4	196.5	8.78	116.3	25.7	2.07
	85	25.29	21.120	9.032	.470	1939.3	183.6	8.76	107.7	23.8	2.06
	80	23.54	21.000	9.000	.435	1794.4	170.9	8.73	99.2	22.0	2.05
CB 211 21″	70	20.59	21.243	8.078	.433	1542.9	145.2	8.66	64.3	15.9	1.77
	64	18.82	21.126	8.036	.396	1403.3	132.9	8.64	58.2	14.5	1.76
	58	17.05	21.000	8.000	.360	1263.2	120.3	8.61	52.0	13.0	1.75
	60	17.64	21.034	8.015	.375	1304.9	124.1	8.60	53.7	13.4	1.75

CARNEGIE BEAM SECTIONS—Continued

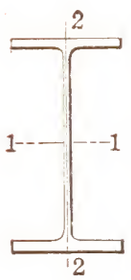


DIMENSIONS OF SECTIONS FRACTIONAL

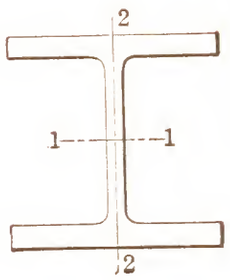


Weight per Foot	Depth of Section	Flange		Web		Distance					Section Index and Nominal Depth
		Width	Thickness	Thickness	½ Thickness +	a	c	f	o	d^1	
Lbs.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	
240	30 3/4	14 3/16	1 9/16	7/8	1/2	6 1 1/16	27 9/16	25 1/2	2 5/8	33 15/16	CB 302 30″
220	30 1/2	14 1/8	1 7/16	13/16	7/16	6 1 1/16	27 9/16	25 1/2	2 1/2	33 5/8	
200	30 1/4	14 1/16	1 5/16	3/4	3/8	6 1 1/16	27 9/16	25 1/2	2 3/8	33 3/8	
180	30	14	1 3/16	1 1/16	3/8	6 1 1/16	27 9/16	25 1/2	2 1/4	33 1/8	
135	30 5/16	10 5/8	1	5/8	5/16	5	28 3/16	26 3/4	1 3/4	32 1/8	CB 301 30″
125	30 1/8	10 9/16	15/16	9/16	5/16	5	28 3/16	26 3/4	1 1 1/16	31 15/16	
115	30	10 1/2	7/8	1/2	5/16	5	28 3/16	26 3/4	1 5/8	31 13/16	
190	27 5/8	14 3/16	1 1/4	3/4	7/16	6 3/4	25	23 1/4	2 3/16	31 1/16	CB 272 27″
175	27 3/8	14 1/8	1 3/16	1 1/16	3/8	6 3/4	25	23 1/4	2 1/16	30 13/16	
160	27 3/16	14 1/16	1 1/16	5/8	3/8	6 3/4	25	23 1/4	2	30 5/8	
145	27	14	1	9/16	5/16	6 3/4	25	23 1/4	1 7/8	30 7/16	
112	27 3/8	9 7/8	15/16	9/16	5/16	4 1 1/16	25 7/16	24 1/8	1 5/8	29 1/16	CB 271 27″
101	27 3/16	9 13/16	13/16	1/2	5/16	4 1 1/16	25 7/16	24 1/8	1 1/2	28 7/8	
91	27	9 3/4	3/4	7/16	1/4	4 1 1/16	25 7/16	24 1/8	1 7/16	28 1 1/16	
160	24 1 1/16	14 1/8	1 1/8	1 1/16	3/8	6 3/4	22 3/8	20 3/4	1 15/16	28 7/16	CB 244 24″
150	24 1/2	14 1/16	1 1/16	5/8	3/8	6 3/4	22 3/8	20 3/4	1 7/8	28 5/16	
140	24 3/8	14 1/16	1	9/16	5/16	6 3/4	22 3/8	20 3/4	1 13/16	28 1/8	
130	24 1/4	14	15/16	9/16	5/16	6 3/4	22 3/8	20 3/4	1 3/4	28	
120	24 5/16	12 1/16	15/16	9/16	5/16	5 13/16	22 3/8	20 3/4	1 3/4	27 3/16	CB 243 24″
110	24 1/8	12 1/16	7/8	1/2	1/4	5 13/16	22 3/8	20 3/4	1 1 1/16	27	
100	24	12	13/16	7/16	1/4	5 13/16	22 3/8	20 3/4	1 5/8	26 7/8	
94	24 5/16	9 7/8	13/16	1/2	1/4	4 1 1/16	22 5/8	21 3/8	1 7/16	26 1/4	CB 242 24″
85	24 1/8	9 13/16	3/4	7/16	1/4	4 1 1/16	22 5/8	21 3/8	1 3/8	26 1/16	
76	24	9 3/4	1 1/16	3/8	1/4	4 1 1/16	22 5/8	21 3/8	1 5/16	25 15/16	
70	24	8 1/2	1 1/16	3/8	1/4	4 1/16	22 5/8	21 3/8	1 5/16	25 1/2	CB 241 24″
120	21 1/4	13 1/16	15/16	9/16	5/16	6 5/16	19 5/16	17 7/8	1 1 1/16	24 15/16	CB 213 21″
112	21 1/8	13 1/16	7/8	1/2	1/4	6 5/16	19 5/16	17 7/8	1 5/8	24 13/16	
104	21	13	13/16	7/16	1/4	6 5/16	19 5/16	17 7/8	1 9/16	24 1 1/16	
92	21 1/4	9 1/16	15/16	1/2	1/4	4 5/16	19 5/16	17 7/8	1 1 1/16	23 1/8	CB 212 21″
86	21 1/8	9 1/16	7/8	1/2	1/4	4 5/16	19 5/16	17 7/8	1 5/8	23	
80	21	9	13/16	7/16	1/4	4 5/16	19 5/16	17 7/8	1 9/16	22 7/8	
70	21 1/4	8 1/16	3/4	7/16	1/4	3 13/16	19 3/4	18 5/8	1 5/16	22 3/4	CB 211 21″
64	21 1/8	8 1/16	11/16	3/8	1/4	3 13/16	19 3/4	18 5/8	1 1/4	22 5/8	
58	21	8	5/8	3/8	3/16	3 13/16	19 3/4	18 5/8	1 3/16	22 1/2	
60	21	8	5/8	3/8	3/16	3 13/16	19 3/4	18 5/8	1 3/16	22 1/2	

CARNEGIE BEAM SECTIONS—Continued

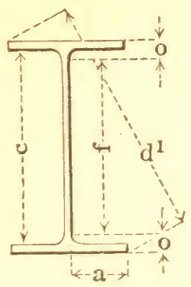


ELEMENTS OF SECTIONS DECIMAL

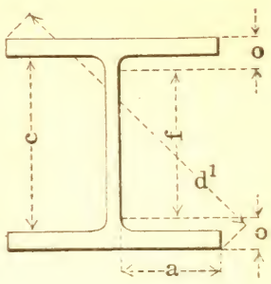


Section Index and Nominal Depth	Weight per Foot	Area of Section	Depth of Section	Flange Width	Web Thickness	Axis 1-1			Axis 2-2		
						I	S	r	I	S	r
	Lbs.	In.^{2}	In.	In.	In.	In.^{4}	In.^{3}	In.	In.^{4}	In.^{3}	In.
CB 183 18″	100	29.40	18.238	12.069	.498	1783.4	195.6	7.79	253.4	42.0	2.94
	93	27.35	18.120	12.034	.463	1648.4	181.9	7.76	234.0	38.9	2.93
	86	25.29	18.000	12.000	.429	1514.1	168.2	7.74	214.7	35.8	2.91
CB 182 18″	78	22.94	18.242	8.565	.471	1318.8	144.6	7.58	90.9	21.2	1.99
	72	21.17	18.110	8.530	.436	1208.1	133.4	7.55	82.9	19.4	1.98
	67	19.69	18.000	8.500	.406	1117.1	124.1	7.53	76.4	18.0	1.97
CB 181 18″	58	17.05	18.252	7.573	.393	960.8	105.3	7.51	49.0	13.0	1.70
	52	15.30	18.114	7.534	.354	855.1	94.4	7.48	43.3	11.5	1.68
	47	13.82	18.000	7.500	.320	768.6	85.4	7.46	38.7	10.3	1.67
	51	15.00	18.024	7.555	.375	810.0	89.9	7.35	40.5	10.7	1.64
CB 165 16″	115	33.82	16.236	14.068	.532	1665.6	205.2	7.02	426.2	60.6	3.55
	107	31.46	16.110	14.032	.496	1537.2	190.8	6.99	393.9	56.1	3.54
	100	29.41	16.000	14.000	.464	1426.8	178.3	6.97	366.0	52.3	3.53
CB 164 16″	90	26.46	16.240	12.076	.495	1275.5	157.1	6.94	230.0	38.1	2.95
	83	24.41	16.120	12.039	.458	1167.7	144.9	6.92	210.4	35.0	2.94
	76	22.34	16.000	12.000	.419	1061.3	132.7	6.89	191.1	31.8	2.92
CB 163 16″	68	20.00	16.226	8.563	.438	923.7	113.9	6.80	81.3	19.0	2.02
	63	18.52	16.114	8.531	.406	849.9	105.5	6.77	74.6	17.5	2.01
	58	17.06	16.000	8.500	.375	776.6	97.1	6.75	68.0	16.0	2.00
CB 162 16″	50	14.70	16.254	7.072	.362	666.0	81.9	6.73	38.2	10.8	1.61
	45	13.23	16.128	7.036	.326	595.0	73.8	6.71	34.0	9.7	1.60
	40	11.75	16.000	7.000	.290	524.6	65.6	6.68	29.8	8.5	1.59
	43	12.65	15.934	7.085	.375	523.8	65.7	6.44	28.9	8.2	1.51
CB 161 16″	38	11.17	16.012	6.024	.314	475.1	59.3	6.52	19.2	6.4	1.31
	35	10.29	15.930	6.000	.290	435.5	54.7	6.50	17.5	5.8	1.30

CARNEGIE BEAM SECTIONS—Continued



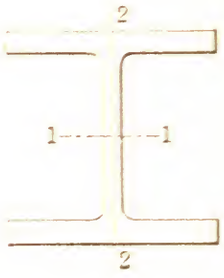
DIMENSIONS OF SECTIONS FRACTIONAL



Weight per Foot	Depth of Section	Flange		Web		Distance					Section Index and Nominal Depth
		Width	Thickness	Thickness	½ Thickness +	a	c	f	o	d^1	
Lbs.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	
100	18¼	12 1/16	⅞	½	¼	5 13/16	16½	15⅛	1 9/16	21⅞	CB 183 18″
93	18⅛	12 1/16	13/16	7/16	¼	5 13/16	16½	15⅛	1½	21¾	
86	18	12	¾	7/16	¼	5 13/16	16½	15⅛	1 7/16	21⅝	
78	18¼	8 9/16	⅞	½	¼	4 1/16	16½	15⅛	1 9/16	20⅛	CB 182 18″
72	18⅛	8½	13/16	7/16	¼	4 1/16	16½	15⅛	1½	20	
67	18	8½	¾	⅜	¼	4 1/16	16½	15⅛	1 7/16	19 15/16	
58	18¼	7 9/16	11/16	⅜	¼	3⅝	16⅞	15⅞	1 3/16	19¾	
52	18⅛	7 9/16	⅝	⅜	3/16	3⅝	16⅞	15⅞	1⅛	19⅝	CB 181 18″
47	18	7½	9/16	5/16	3/16	3⅝	16⅞	15⅞	1 1/16	19½	
51	18	7 9/16	9/16	⅜	3/16	3⅝	16⅞	15⅞	1 1/16	19 9/16	
115	16¼	14 1/16	15/16	9/16	5/16	6 13/16	14⅜	13	1⅝	21½	CB 165 16″
107	16⅛	14	⅞	½	¼	6 13/16	14⅜	13	1 9/16	21⅜	
100	16	14	13/16	7/16	¼	6 13/16	14⅜	13	1½	21¼	
90	16¼	12 1/16	13/16	½	¼	5 13/16	14⅝	13⅜	1 7/16	20¼	CB 164 16″
83	16⅛	12 1/16	¾	7/16	¼	5 13/16	14⅝	13⅜	1⅜	20⅛	
76	16	12	11/16	7/16	¼	5 13/16	14⅝	13⅜	1 5/16	20	
68	16¼	8 9/16	¾	7/16	¼	4 1/16	14⅝	13⅜	1 7/16	18¾	CB 163 16″
63	16⅛	8½	¾	⅜	¼	4 1/16	14⅝	13⅜	1⅜	18¼	
58	16	8½	11/16	⅜	3/16	4 1/16	14⅝	13⅜	1 5/16	18⅛	
50	16¼	7 1/16	⅝	⅜	3/16	3⅜	14 15/16	14	1⅛	17¾	
45	16⅛	7 1/16	9/16	5/16	3/16	3⅜	14 15/16	14	1 1/16	17⅝	CB 162 16″
40	16	7	½	5/16	3/16	3⅜	14 15/16	14	1	17½	
43	15 15/16	7 1/16	½	⅜	3/16	3⅜	14 15/16	14	1	17 3/16	
38	16	6	½	5/16	3/16	2⅞	14 15/16	14	1	17⅛	CB 161 16″
35	15 15/16	6	½	5/16	3/16	2⅞	14 15/16	14	15/16	17 1/16	

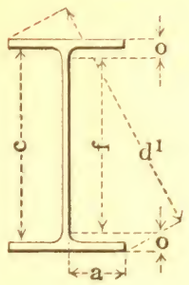
CARNEGIE BEAM SECTIONS—Continued

ELEMENTS OF SECTIONS DECIMAL

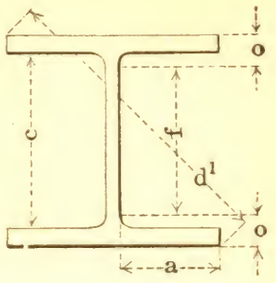


Section Index and Nominal Depth	Weight per Foot	Area of Section	Depth of Section	Flange Width	Web Thickness	Axis 1-1			Axis 2-2		
						I	S	r	I	S	r
	Lbs.	In.^{2}	In.	In.	In.	In.^{4}	In.^{3}	In.	In.^{4}	In.^{3}	In.
	305	89.70	16.890	16.000	1.406	4121.5	488.0	6.78	1539.1	192.4	4.14
	295	86.76	16.752	15.956	1.362	3948.1	471.4	6.75	1479.4	185.4	4.13
	285	83.82	16.614	15.912	1.318	3778.1	454.8	6.71	1420.7	178.6	4.12
	275	80.87	16.472	15.870	1.276	3607.8	438.1	6.68	1362.0	171.6	4.10
	265	77.93	16.332	15.826	1.232	3442.4	421.6	6.65	1304.2	164.8	4.09
	255	74.99	16.192	15.781	1.187	3280.0	405.1	6.61	1247.1	158.0	4.08
	245	72.06	16.050	15.738	1.144	3119.6	388.7	6.58	1190.6	151.3	4.06
	235	69.11	15.908	15.693	1.099	2961.9	372.4	6.55	1134.5	144.6	4.05
	225	66.17	15.764	15.650	1.056	2806.2	356.0	6.51	1079.1	137.9	4.04
	215	63.23	15.622	15.604	1.010	2654.7	339.9	6.48	1024.5	131.3	4.03
CB 146 14″	205	60.28	15.478	15.559	.965	2505.0	323.7	6.45	970.3	124.7	4.01
	195	57.34	15.334	15.513	.919	2358.2	307.6	6.41	916.8	118.2	4.00
	185	54.41	15.188	15.469	.875	2213.5	291.5	6.38	863.9	111.7	3.98
	175	51.47	15.042	15.424	.830	2071.7	275.5	6.34	811.6	105.2	3.97
	165	48.52	14.896	15.377	.783	1932.6	259.5	6.31	759.9	98.8	3.96
	155	45.58	14.750	15.330	.736	1796.8	243.6	6.28	709.0	92.5	3.94
	145	42.64	14.602	15.284	.690	1662.7	227.7	6.24	658.5	86.2	3.93
	135	39.70	14.452	15.239	.645	1530.4	211.8	6.21	608.4	79.9	3.92
	125	36.75	14.304	15.191	.597	1402.1	196.0	6.18	559.4	73.7	3.90
	115	33.82	14.154	15.145	.551	1275.9	180.3	6.14	510.9	67.5	3.89
	131	38.52	14.162	15.468	.874	1358.4	191.8	5.94	547.3	70.8	3.77
CB 145 14″	105	30.88	14.370	12.101	.536	1169.6	162.8	6.15	292.6	48.4	3.08
	95	27.93	14.186	12.050	.485	1044.0	147.2	6.11	262.0	43.5	3.06
	85	24.99	14.000	12.000	.435	921.3	131.6	6.07	232.0	38.7	3.05
CB 144 14″	75	22.05	14.382	10.086	.468	823.5	114.5	6.11	134.5	26.7	2.47
	68	19.99	14.238	10.043	.425	738.8	103.8	6.08	120.6	24.0	2.46
	61	17.94	14.094	10.000	.382	656.2	93.1	6.05	107.1	21.4	2.44
CB 143 14″	53	17.05	14.242	8.070	.413	609.4	85.6	5.98	62.8	15.6	1.92
	53	15.59	14.122	8.035	.378	552.5	78.2	5.95	56.8	14.1	1.91
	48	14.12	14.000	8.000	.343	496.0	70.9	5.93	50.8	12.7	1.90
CB 142 14″	42	12.35	14.240	6.822	.342	431.5	60.6	5.91	30.2	8.8	1.56
	39	11.47	14.160	6.794	.314	398.3	56.3	5.89	27.7	8.2	1.56
	36	10.58	14.080	6.774	.294	365.6	51.9	5.88	25.4	7.5	1.55
	33	9.71	14.000	6.750	.270	333.4	47.6	5.86	23.0	6.8	1.54
	38	11.18	14.000	6.855	.375	357.5	51.1	5.66	24.2	7.1	1.47
CB 141 14″	30	8.82	13.964	6.000	.270	292.0	41.8	5.75	15.5	5.2	1.33

CARNEGIE BEAM SECTIONS—Continued



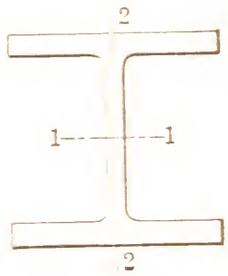
DIMENSIONS OF SECTIONS FRACTIONAL



Weight per Foot	Depth of Section	Flange		Web		Distance					Section Index and Nominal Depth
		Width	Thick-ness	Thick-ness	½ Thick-ness +	a	c	f	o	d^1	
Lbs.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	
305	16 7/8	16	2 1/4	1 3/8	3/4	7 5/16	12 3/8	11	2 15/16	23 5/16	
295	16 3/4	15 15/16	2 3/16	1 3/8	1 1/16	7 5/16	12 3/8	11	2 7/8	23 1/8	
285	16 5/8	15 15/16	2 1/8	1 5/16	1 1/16	7 5/16	12 3/8	11	2 13/16	23	
275	16 1/2	15 7/8	2 1/16	1 1/4	1 1/16	7 5/16	12 3/8	11	2 3/4	22 7/8	
265	16 5/16	15 13/16	2	1 1/4	5/8	7 5/16	12 3/8	11	2 11/16	22 3/4	
255	16 3/16	15 3/4	1 7/8	1 3/16	5/8	7 5/16	12 3/8	11	2 5/8	22 5/8	
245	16 1/16	15 3/4	1 13/16	1 1/8	5/8	7 5/16	12 3/8	11	2 9/16	22 1/2	
235	15 15/16	15 11/16	1 3/4	1 1/8	9/16	7 5/16	12 3/8	11	2 1/2	22 3/8	
225	15 3/4	15 5/8	1 11/16	1 1/16	9/16	7 5/16	12 3/8	11	2 3/8	22 1/4	
215	15 5/8	15 5/8	1 5/8	1	9/16	7 5/16	12 3/8	11	2 5/16	22 1/8	
205	15 1/2	15 9/16	1 9/16	15/16	1/2	7 5/16	12 3/8	11	2 1/4	21 15/16	CB 146
195	15 5/16	15 1/2	1 1/2	15/16	1/2	7 5/16	12 3/8	11	2 3/16	21 13/16	14″
185	15 3/16	15 1/2	1 3/8	7/8	7/16	7 5/16	12 3/8	11	2 1/8	21 11/16	
175	15 1/16	15 7/16	1 5/16	13/16	7/16	7 5/16	12 3/8	11	2 1/16	21 9/16	
165	14 7/8	15 3/8	1 1/4	13/16	7/16	7 5/16	12 3/8	11	1 15/16	21 7/16	
155	14 3/4	15 5/16	1 3/16	3/4	3/8	7 5/16	12 3/8	11	1 7/8	21 5/16	
145	14 5/8	15 5/16	1 1/8	11/16	3/8	7 5/16	12 3/8	11	1 13/16	21 1/8	
135	14 7/16	15 1/4	1	5/8	3/8	7 5/16	12 3/8	11	1 3/4	21	
125	14 5/16	15 3/16	15/16	5/8	5/16	7 5/16	12 3/8	11	1 11/16	20 7/8	
115	14 1/8	15 1/8	7/8	9/16	5/16	7 5/16	12 3/8	11	1 9/16	20 3/4	
131	14 3/16	15 7/16	7/8	7/8	7/16	7 5/16	12 3/8	11	1 5/8	21	
105	14 3/8	12 1/8	1	9/16	5/16	5 13/16	12 3/8	11	1 11/16	18 13/16	CB 145
95	14 3/16	12 1/16	7/8	1/2	1/4	5 13/16	12 3/8	11	1 5/8	18 5/8	14″
85	14	12	13/16	7/16	1/4	5 13/16	12 3/8	11	1 1/2	18 7/16	
75	14 3/8	10 1/16	13/16	7/16	1/4	4 13/16	12 3/4	11 5/8	1 3/8	17 9/16	CB 144
68	14 1/4	10 1/16	11/16	7/16	1/4	4 13/16	12 3/4	11 5/8	1 5/16	17 7/16	14″
61	14 1/8	10	5/8	3/8	1/4	4 13/16	12 3/4	11 5/8	1 1/4	17 5/16	
58	14 1/4	8 1/16	11/16	7/16	1/4	3 7/8	12 3/4	11 5/8	1 5/16	16 3/8	CB 143
53	14 1/8	8 1/16	5/8	3/8	1/4	3 7/8	12 3/4	11 5/8	1 1/4	16 1/4	14″
48	14	8	5/8	5/16	3/16	3 7/8	12 3/4	11 5/8	1 3/16	16 1/8	
42	14 1/4	6 13/16	9/16	5/16	3/16	3 1/4	13 1/16	12 1/4	1	15 13/16	
39	14 3/16	6 13/16	1/2	5/16	3/16	3 1/4	13 1/16	12 1/4	1	15 11/16	CB 142
36	14 1/16	6 3/4	1/2	5/16	3/16	3 1/4	13 1/16	12 1/4	15/16	15 5/8	14″
33	14	6 3/4	7/16	1/4	3/16	3 1/4	13 1/16	12 1/4	7/8	15 9/16	
38	14	6 7/8	7/16	3/8	3/16	3 1/4	13 1/16	12 1/4	7/8	15 5/8	
30	13 15/16	6	7/16	1/4	3/16	2 7/8	13 1/16	12 1/4	7/8	15 3/16	CB 141 14″

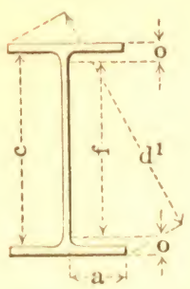
CARNEGIE BEAM SECTIONS—Continued

ELEMENTS OF SECTIONS DECIMAL

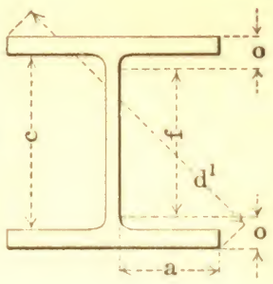


Section Index and Nominal Depth	Weight per Foot	Area of Section	Depth of Section	Flange Width	Web Thickness	Axis 1-1			Axis 2-2		
						I	S	r	I	S	r
	Lbs.	In.^{2}	In.	In.	In.	In.^{4}	In.^{3}	In.	In.^{4}	In.^{3}	In.
CB 127 12″	230	67.64	12.000	14.980	1.980	1461.9	243.7	4.65	945.5	126.2	3.74
	220	64.70	12.000	14.735	1.735	1426.6	237.8	4.70	898.2	121.9	3.73
	210	61.76	12.000	14.490	1.490	1391.3	231.9	4.75	852.9	117.7	3.72
	200	58.82	12.000	14.245	1.245	1356.1	226.0	4.80	809.5	113.7	3.71
	190	55.88	12.000	14.000	1.000	1320.8	220.1	4.86	767.8	109.7	3.71
CB 126 12″	180	52.94	12.000	14.735	1.492	1218.1	203.0	4.80	702.4	95.3	3.64
	170	50.00	12.000	14.490	1.247	1182.8	197.1	4.86	666.9	92.1	3.65
	160	47.06	12.000	14.245	1.002	1147.5	191.3	4.94	633.0	88.9	3.67
	150	44.12	12.000	14.000	.757	1112.2	185.4	5.02	600.4	85.8	3.69
CB 125 12″	140	41.18	12.000	12.736	1.376	934.8	155.8	4.76	372.4	58.5	3.01
	130	38.24	12.000	12.491	1.131	899.5	149.9	4.85	350.5	56.1	3.03
	120	35.28	12.000	12.245	.885	864.1	144.0	4.95	329.6	53.8	3.06
	110	32.34	12.000	12.000	.640	828.8	138.1	5.06	309.9	51.6	3.10
CB 124 12″	100	29.41	12.000	10.613	1.121	659.0	109.8	4.73	167.5	31.6	2.39
	91	26.76	12.000	10.392	.900	627.2	104.5	4.84	155.9	30.0	2.41
	83	24.41	12.000	10.196	.704	598.9	99.8	4.95	147.0	28.8	2.45
	75	22.05	12.000	10.000	.508	570.7	95.1	5.09	138.5	27.7	2.51
CB 123 12″	50	14.69	12.258	8.071	.361	400.5	65.4	5.22	57.5	14.2	1.98
	45	13.23	12.130	8.036	.326	356.9	58.8	5.19	51.2	12.7	1.97
	40	11.76	12.000	8.000	.290	313.7	52.3	5.17	44.9	11.2	1.95
CB 122 12″	36	10.59	12.236	6.565	.305	280.1	45.8	5.14	25.4	7.7	1.55
	32	9.40	12.118	6.534	.274	246.3	40.7	5.12	22.3	6.8	1.54
	28	8.22	12.000	6.500	.240	213.4	35.6	5.10	19.2	5.9	1.53
CB 121 12″	34	9.99	12.022	6.635	.375	238.1	39.6	4.88	21.0	6.3	1.45
	25	7.34	11.924	6.000	.240	183.0	30.7	4.99	13.8	4.6	1.37

CARNEGIE BEAM SECTIONS—Continued



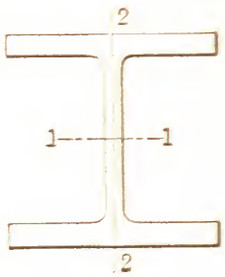
DIMENSIONS OF SECTIONS FRACTIONAL



Weight per Foot	Depth of Section	Flange		Web		Distance					Section Index and Nominal Depth
		Width	Thickness	Thickness	½ Thickness +	a	c	f	o	d^1	
Lbs.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	
230	12	15	1 11/16	2	1	6 1/2	8 5/8	7 1/4	2 3/8	19 3/16	
220	12	14 3/4	1 11/16	1 3/4	7/8	6 1/2	8 5/8	7 1/4	2 3/8	19	CB 127 12″
210	12	14 1/2	1 11/16	1 1/2	3/4	6 1/2	8 5/8	7 1/4	2 3/8	18 13/16	
200	12	14 1/4	1 11/16	1 1/4	5/8	6 1/2	8 5/8	7 1/4	2 3/8	18 5/8	
190	12	14	1 1/16	1	1/2	6 1/2	8 5/8	7 1/4	2 3/8	18 7/16	
180	12	14 3/4	1 5/16	1 1/2	3/4	6 5/8	9 3/8	8	2	19	
170	12	14 1/2	1 5/16	1 1/4	5/8	6 5/8	9 3/8	8	2	18 13/16	CB 126 12″
160	12	14 1/4	1 5/16	1	9/16	6 5/8	9 3/8	8	2	18 5/8	
150	12	14	1 5/16	3/4	7/16	6 5/8	9 3/8	8	2	18 7/16	
140	12	12 3/4	1 1/16	1 3/8	3/4	5 11/16	9 13/16	8 5/8	1 11/16	17 1/2	
130	12	12 1/2	1 1/16	1 1/8	5/8	5 11/16	9 13/16	8 5/8	1 11/16	17 3/8	CB 125 12″
120	12	12 1/4	1 1/16	7/8	1/2	5 11/16	9 13/16	8 5/8	1 11/16	17 1/8	
110	12	12	1 1/16	5/8	3/8	5 11/16	9 13/16	8 5/8	1 11/16	17	
100	12	10 5/8	13/16	1 1/8	9/16	4 3/4	10 5/16	9 1/4	1 3/8	16	
91	12	10 3/8	13/16	7/8	1/2	4 3/4	10 5/16	9 1/4	1 3/8	15 7/8	CB 124 12″
83	12	10 3/16	13/16	11/16	3/8	4 3/4	10 5/16	9 1/4	1 3/8	15 3/4	
75	12	10	13/16	1/2	5/16	4 3/4	10 5/16	9 1/4	1 3/8	15 5/8	
50	12 1/4	8 1/16	5/8	3/8	3/16	3 7/8	10 15/16	9 7/8	1 3/16	14 11/16	CB 123 12″
45	12 1/8	8 1/16	9/16	5/16	3/16	3 7/8	10 15/16	9 7/8	1 1/8	14 9/16	
40	12	8	1/2	5/16	3/16	3 7/8	10 15/16	9 7/8	1 1/16	14 7/16	
36	12 1/4	6 9/16	9/16	5/16	3/16	3 3/16	11 1/8	10 3/8	15/16	13 7/8	
32	12 1/8	6 9/16	1/2	1/4	3/16	3 3/16	11 1/8	10 3/8	7/8	13 13/16	CB 122 12″
28	12	6 1/2	7/16	1/4	1/8	3 3/16	11 1/8	10 3/8	13/16	13 11/16	
34	12	6 5/8	7/16	3/8	3/16	3 3/16	11 1/8	10 3/8	13/16	13 3/4	
25	11 15/16	6	3/8	1/4	1/8	2 15/16	11 1/8	10 3/8	13/16	13 3/8	CB 121 12″

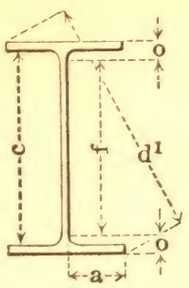
CARNEGIE BEAM SECTIONS—Continued

ELEMENTS OF SECTIONS DECIMAL

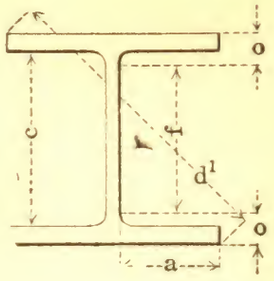


Section Index and Nominal Depth	Weight per Foot	Area of Section	Depth of Section	Flange Width	Web Thickness	Axis 1-1			Axis 2-2		
						I	S	r	I	S	r
	Lbs.	In.^{2}	In.	In.	In.	In.^{4}	In.^{3}	In.	In.^{4}	In.^{3}	In.
	140	41.17	10.000	13.177	1.777	623.2	124.6	3.89	391.4	59.4	3.08
	132	38.81	10.000	12.941	1.541	603.5	120.7	3.94	369.6	57.1	3.09
GB 105 10″	124	36.46	10.000	12.706	1.306	583.9	116.8	4.00	349.0	54.9	3.09
	116	34.11	10.000	12.471	1.071	564.3	112.9	4.07	329.4	52.8	3.11
	108	31.76	10.000	12.236	.836	544.8	109.0	4.14	310.7	50.8	3.13
	100	29.40	10.000	12.000	.600	525.1	105.0	4.23	292.8	48.8	3.16
	92	27.06	10.000	10.647	1.162	423.2	84.6	3.96	163.1	30.6	2.50
CB 104 10″	84	24.70	10.000	10.411	.926	403.6	80.7	4.04	152.0	29.2	2.48
	77	22.65	10.000	10.206	.721	386.5	77.3	4.13	142.9	28.0	2.51
	70	20.59	10.000	10.000	.515	369.3	73.9	4.24	134.3	26.9	2.55
	63	18.53	10.000	9.412	.787	300.4	60.1	4.03	85.2	18.1	2.14
CB 103 10″	56	16.47	10.000	9.206	.581	283.2	56.6	4.15	79.5	17.3	2.20
	49	14.41	10.000	9.000	.375	266.0	53.2	4.30	74.2	16.5	2.27
	42	12.35	10.000	8.324	.644	190.4	38.1	3.93	36.8	8.9	1.73
CB 102 10″	36	10.58	10.000	8.147	.467	175.6	35.1	4.07	34.4	8.5	1.80
	31	9.11	10.000	8.000	.320	163.4	32.7	4.23	32.5	8.1	1.89
	30	8.82	10.228	6.068	.298	163.2	31.9	4.30	18.5	6.1	1.45
	26	7.64	10.098	6.029	.259	139.5	27.6	4.27	15.7	5.2	1.43
CB 101 10″	23	6.76	10.000	6.000	.230	122.2	24.4	4.25	13.7	4.6	1.43
	21	6.17	9.902	6.000	.230	107.6	21.7	4.18	12.0	4.0	1.39
	48	14.11	9.242	9.082	.398	221.1	47.8	3.96	73.8	16.3	2.29
CB 93 9″	43	12.65	9.122	9.041	.357	195.5	42.9	3.93	65.4	14.5	2.28
	38	11.17	9.000	9.000	.316	170.4	37.9	3.91	57.1	12.7	2.26
	35	10.29	9.192	6.556	.335	155.4	33.8	3.89	26.6	8.1	1.61
CB 92 9″	32	9.40	9.096	6.528	.307	140.5	30.9	3.87	24.0	7.4	1.60
	29	8.53	9.000	6.500	.279	126.0	28.0	3.84	21.5	6.6	1.59

CARNEGIE BEAM SECTIONS—Continued

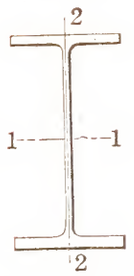


DIMENSIONS OF SECTIONS FRACTIONAL

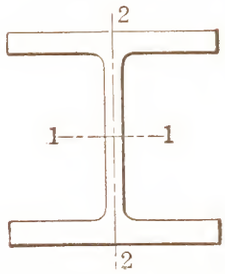


Weight per Foot	Depth of Section	Flange		Web		Distance					Section Index and Nominal Depth
		Width	Thick-ness	Thick-ness	½ Thick-ness +	a	c	f	o	d^1	
Lbs.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	
140	10	13 3/16	1	1 3/4	1 5/16	5 3/4	7 15/16	6 3/4	1 5/8	16 9/16	
132	10	12 15/16	1	1 9/16	1 3/16	5 3/4	7 15/16	6 3/4	1 5/8	16 3/8	
124	10	12 1/16	1	1 5/16	1 1/16	5 3/4	7 15/16	6 3/4	1 5/8	16 3/16	CB 105 10″
116	10	12 1/2	1	1 1/16	9/16	5 3/4	7 15/16	6 3/4	1 5/8	16	
108	10	12 1/4	1	13/16	7/16	5 3/4	7 15/16	6 3/4	1 5/8	15 13/16	
100	10	12	1	5/8	5/16	5 3/4	7 15/16	6 3/4	1 5/8	15 5/8	
92	10	10 5/8	13/16	13/16	5/8	4 3/4	8 3/8	7 3/8	1 5/16	14 5/8	
84	10	10 7/16	13/16	15/16	1/2	4 3/4	8 3/8	7 3/8	1 5/16	14 7/16	CB 104 10″
77	10	10 3/16	13/16	3/4	3/8	4 3/4	8 3/8	7 3/8	1 5/16	14 5/16	
70	10	10	13/16	1/2	5/16	4 3/4	8 3/8	7 3/8	1 5/16	14 3/16	
63	10	9 7/16	5/8	13/16	7/16	4 5/16	8 3/4	7 7/8	1 1/16	13 3/4	
56	10	9 3/16	5/8	9/16	5/16	4 5/16	8 3/4	7 7/8	1 1/16	13 5/8	CB 103 10″
49	10	9	5/8	3/8	3/16	4 5/16	8 3/4	7 7/8	1 1/16	13 1/2	
42	10	8 5/16	3/8	5/8	3/8	3 7/8	9 3/16	8 5/8	1 1/16	13 1/16	
36	10	8 1/8	3/8	7/16	1/4	3 7/8	9 3/16	8 5/8	1 1/16	12 15/16	CB 102 10″
31	10	8	3/8	5/16	3/16	3 7/8	9 3/16	8 5/8	1 1/16	12 13/16	
30	10 1/4	6 1/16	1/2	5/16	3/16	2 15/16	9 3/16	8 5/8	13/16	11 15/16	
26	10 1/8	6	7/16	1/4	3/16	2 15/16	9 3/16	8 5/8	3/4	11 13/16	CB 101 10″
23	10	6	3/8	1/4	1/8	2 15/16	9 3/16	8 5/8	11/16	11 11/16	
21	9 7/8	6	5/16	1/4	1/8	2 15/16	9 3/16	8 5/8	5/8	11 5/8	
48	9 1/4	9 1/16	9/16	3/8	1/4	4 3/8	8	7	1 1/8	13	
43	9 1/8	9 1/16	1/2	3/8	3/16	4 3/8	8	7	1 1/16	12 7/8	CB 93 9″
38	9	9	1/2	5/16	3/16	4 3/8	8	7	1	12 3/4	
35	9 3/16	6 9/16	9/16	5/16	3/16	3 1/8	8	7	1 1/8	11 5/16	
32	9 1/8	6 1/2	1/2	5/16	3/16	3 1/8	8	7	1 1/16	11 3/16	CB 92 9″
29	9	6 1/2	1/2	1/4	3/16	3 1/8	8	7	1	11 1/8	

CARNEGIE BEAM SECTIONS—Continued



ELEMENTS OF SECTIONS DECIMAL

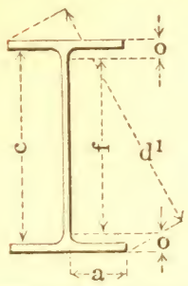


Section Index and Nominal Depth	Weight per Foot	Area of Section	Depth of Section	Flange Width	Web Thickness	Axis 1-1			Axis 2-2		
						I	S	r	I	S	r
	Lbs.	In.^{2}	In.	In.	In.	In.^{4}	In.^{3}	In.	In.^{4}	In.^{3}	In.
	90	26.47	9.606	8.520	.810	391.2	81.4	3.84	124.4	29.2	2.17
	84	24.71	9.456	8.469	.759	358.6	75.8	3.81	114.5	27.0	2.15
	78	22.93	9.302	8.418	.708	326.5	70.2	3.77	104.7	24.9	2.14
	72	21.17	9.150	8.366	.656	295.9	64.7	3.74	95.3	22.8	2.12
	66	19.40	8.994	8.314	.604	265.9	59.1	3.70	86.1	20.7	2.11
CB 83 8″	60	17.63	8.838	8.261	.551	237.1	53.7	3.67	77.1	18.7	2.09
	54	15.87	8.680	8.208	.498	209.2	48.2	3.63	68.3	16.6	2.07
	48	14.10	8.520	8.155	.445	182.2	42.8	3.59	59.7	14.6	2.06
	42	12.34	8.360	8.100	.390	156.2	37.4	3.56	51.4	12.7	2.04
	36	10.58	8.198	8.046	.336	131.3	32.0	3.52	43.4	10.8	2.02
	31	9.10	8.060	8.000	.290	110.9	27.5	3.49	36.7	9.2	2.01
CB 82 8″	30	8.81	8.196	6.559	.298	107.8	26.3	3.50	23.4	7.1	1.63
	27	7.93	8.098	6.529	.268	95.9	23.7	3.48	20.8	6.4	1.62
	24	7.06	8.000	6.500	.239	84.3	21.1	3.46	18.3	5.6	1.61

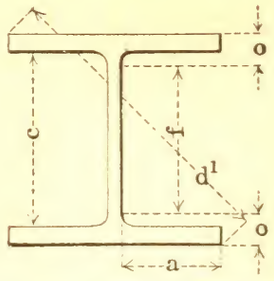
STANDARD MILL SECTIONS

Section Index and Nominal Depth	Weight per Foot	Area of Section	Depth of Section	Flange Width	Web Thickness	Axis 1-1			Axis 2-2		
						I	S	r	I	S	r
	Lbs.	In.^{2}	In.	In.	In.	In.^{4}	In.^{3}	In.	In.^{4}	In.^{3}	In.
B 40 9″	25	7.34	9.000	5.380	.380	95.5	21.2	3.61	8.8	3.3	1.09
	21	6.17	9.000	5.250	.250	87.6	19.5	3.77	8.1	3.1	1.14
B 39 8″	21	6.17	8.000	5.110	.360	63.4	15.9	3.21	6.6	2.6	1.03
	18	5.29	8.000	5.000	.250	58.7	14.7	3.33	6.1	2.4	1.07
H 4 8″	37.7	11.00	8.000	8.125	.500	120.8	30.2	3.31	36.9	9.1	1.83
	34.3	10.00	8.000	8.000	.375	115.5	28.9	3.40	35.1	8.8	1.87
	32.6	9.50	8.000	7.938	.313	112.8	28.2	3.45	34.2	8.6	1.90
H 3A 6″	27.5	8.08	6.000	6.063	.438	49.3	16.4	2.47	16.0	5.3	1.41
	25.0	7.33	6.000	5.938	.313	47.0	15.7	2.53	14.9	5.0	1.43
H 3 6″	22.5	6.61	6.000	6.063	.375	41.0	13.7	2.49	12.2	4.0	1.36
	20.0	5.86	6.000	5.938	.250	38.8	12.9	2.57	11.4	3.8	1.39
H 2 5″	18.9	5.47	5.000	5.000	.313	23.8	9.5	2.08	7.8	3.1	1.20
H 1 4″	13.8	3.99	4.000	4.000	.313	10.7	5.3	1.64	3.6	1.8	0.95

CARNEGIE BEAM SECTIONS—Concluded



DIMENSIONS OF SECTIONS FRACTIONAL



Weight per Foot	Depth of Section	Flange		Web		Distance					Section Index and Nominal Depth
		Width	Thickness	Thickness	½ Thickness+	a	c	f	o	d1	
Lbs.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	
90	9 5/8	8 1/2	1 3/16	1 3/16	7/16	3 7/8	7 3/16	6 1/4	1 1 1/16	12 7/8	
84	9 7/16	8 1/2	1 1/8	3/4	7/16	3 7/8	7 3/16	6 1/4	1 5/8	12 3/4	
78	9 5/16	8 7/16	1 1/16	1 1/16	3/8	3 7/8	7 3/16	6 1/4	1 9/16	12 9/16	
72	9 1/8	8 3/8	1	1 1/16	3/8	3 7/8	7 3/16	6 1/4	1 7/16	12 7/16	
66	9	8 5/16	7/8	5/8	5/16	3 7/8	7 3/16	6 1/4	1 3/8	12 1/4	
60	8 13/16	8 1/4	1 3/16	9/16	5/16	3 7/8	7 3/16	6 1/4	1 5/16	12 1/8	CB 83 8″
54	8 11/16	8 3/16	3/4	1/2	1/4	3 7/8	7 3/16	6 1/4	1 1/4	11 15/16	
48	8 1/2	8 1/8	1 1/16	7/16	1/4	3 7/8	7 3/16	6 1/4	1 1/8	11 13/16	
42	8 3/8	8 1/8	9/16	3/8	1/4	3 7/8	7 3/16	6 1/4	1 1/16	11 11/16	
36	8 3/16	8 1/16	1/2	5/16	3/16	3 7/8	7 3/16	6 1/4	1	11 1/2	
31	8 1/16	8	7/16	5/16	3/16	3 7/8	7 3/16	6 1/4	15/16	11 3/8	
30	8 3/16	6 9/16	1/2	5/16	3/16	3 3/16	7 3/16	6 1/4	1	10 1/2	CB 82 8″
27	8 1/8	6 1/2	7/16	1/4	3/16	3 3/16	7 3/16	6 1/4	15/16	10 7/16	
24	8	6 1/2	3/8	1/4	1/8	3 3/16	7 3/16	6 1/4	7/8	10 5/16	

STANDARD MILL SECTIONS

Weight per Foot	Depth of Section	Flange		Web		Distance					Section Index and Nominal Depth
		Width	Thickness	Thickness	½ Thickness+	a	c	f	o	d1	
Lbs.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	
25	9	5 3/8	3/8	3/8	1/4	2 1/2	. . .	7 1/2	3/4	10 1/2	B 40 9″
21	9	5 1/4	3/8	1/4	1/8	2 1/2	. . .	7 1/2	3/4	10 7/16	
21	8	5 1/8	5/16	3/8	3/16	2 3/8	. . .	6 5/8	1 1/16	9 1/2	B 39 8″
18	8	5	5/16	1/4	1/8	2 3/8	. . .	6 5/8	1 1/16	9 7/16	
37.7	8	8 1/8	7/16	1/2	1/4	3 13/16	. . .	6 1/4	7/8	11 7/16	H 4 8″
34.3	8	8	7/16	3/8	3/16	3 13/16	. . .	6 1/4	7/8	11 5/16	
32.6	8	7 15/16	7/16	5/16	3/16	3 13/16	. . .	6 1/4	7/8	11 1/4	
27.5	6	6 1/16	1/2	7/16	1/4	2 13/16	. . .	4 1/4	7/8	8 9/16	H 3A 6″
25.0	6	5 15/16	1/2	5/16	3/16	2 13/16	. . .	4 1/4	7/8	8 1/2	
22.5	6	6 1/16	3/8	3/8	3/16	2 7/8	. . .	4 7/16	3/4	8 9/16	H 3 6″
20.0	6	5 15/16	3/8	1/4	1/8	2 7/8	. . .	4 7/16	3/4	8 1/2	
18.9	5	5	7/16	5/16	3/16	2 3/8	. . .	3 3/8	13/16	7 1/16	H 2 5″
13.8	4	4	3/8	5/16	3/16	1 7/8	. . .	2 1/2	3/4	5 1 1/16	H 1 4″

Dimensions for Flange Thickness of Standard Mill Sections are the averages between dimensions of toe and root of Flanges.

CARNEGIE STEEL COMPANY

OFFICES

GENERAL OFFICES:

Pittsburgh, Carnegie Building, 434 Fifth Avenue.

DISTRICT OFFICES:

Birmingham, Brown-Marx Building, 2000 First Avenue, North,
Boston, 120 Franklin Street,
Buffalo, The Marine Trust Co. Building, 233-239 Main Street,
Chicago, 208 South La Salle Street,
Cincinnati, Union Trust Building, Fourth and Walnut Streets,
Cleveland, Rockefeller Building, 704 Superior Avenue, N. W.,
Denver, First National Bank Building, 17th and Stout Streets,
Detroit, 2130 Buhl Building, 535 Griswold Street,
New Orleans, Maison Blanche, 921 Canal Street,
New York, Empire Building, 71 Broadway,
Philadelphia, Widener Building, Juniper and Chestnut Streets,
Pittsburgh, Carnegie Building, 434 Fifth Avenue,
St. Louis, 506 Olive Street,
St. Paul, 1308 Merchants National Bank Building, 4th & Robert Sts.

EXPORT REPRESENTATIVES:

UNITED STATES STEEL PRODUCTS CO.,
New York, Hudson Terminal, 30 Church Street.

PACIFIC COAST REPRESENTATIVES:

UNITED STATES STEEL PRODUCTS CO., PACIFIC COAST DEPT.
Los Angeles, 2087 East Slauson Avenue,
Portland, Selling Building, Sixth and Alder Streets,
San Francisco, Rialto Building, 116 New Montgomery Street,
Seattle, Fourth Avenue South and Connecticut Street.